Acquisition Support Group
Veronica.reynosa@ncia.nato.int
Telephone: +32 (0)2 707 8499
Fax: +32 (0)2 707 8770

NCIA/ACQ/0890

10 July 2012

To: See Distribution List

Subject: **Request For Quotation No. CO-13639-ACCS.**

Provide Enhancements to NATO Integrated Air and Missile Defence System Command and Control Communications – Voice Loop Communications

Dear Madam/Sir,

1. Your firm maintains a Basic Ordering Agreement with this Agency and has been identified as a potential source of services for the areas of interest: Provide Voice Loop Communications to enhance NATO Integrated Air and Missile Defence System Command and Control Communications. The technical specifications and contract performance requirements are set forth in the Statement of Work of the Prospective Purchase Order attached hereto.

2. You are invited to participate in a BOA competition for a contract covering this effort and you are therefore requested to submit a bid that fulfils the requirements.

3. This Request For Quotation consists of the Information for Bidders and the Prospective Contract. The Prospective Contract contains the Schedules, Special Provisions and the Statement of Work.

4. The security classification of this Request For Quotation is "NATO UNCLASSIFIED". The requirements of the Statement of Work involve security classification of personnel to a level of "NATO SECRET". Compliance with requirements for personnel security is mandatory. This Request For Quotation remains the property of the NATO Communications and Information Agency and shall be protected in accordance with the applicable national security regulations.

5. THE CLOSING TIME FOR SUBMISSION OF BID IS 14:00 HOURS (BRUSSELS TIME) ON **09 AOUT 2013.**

6. You are requested to complete and return Enclosure 1 ACKNOWLEDGEMENT OF RECEIPT within 72 hours of receipt of this letter. Further correspondence will be sent only to those firms that have returned this document and have indicated thereon their intention to participate in this bidding procedure.

NATO Communications and Information Agency
Agence OTAN d'information et de communication
Avenue du Bourget 140
1140 Brussels, Belgium
www.ncia.nato.int

NCIA/ACQ/0890

7. The NCI Agency point of contact for this procurement is Ms. Veronica Reynosa, Tel. 32 (2) 707-8499, fax 32 (2) 707-8770, or e-mail at veronica.reynosa@ncia.nato.int. It is requested that you notify her if your firm does not intend to submit a bid in response to the RFQ.

FOR THE GENERAL MANAGER

L.T. Herway

Chief of Contracts

Attachment(s): RFQ-CO-13639-ACCS

Distribution List:

Prospective Bidders	1

NATO HQ

Security Investment Directorate Attn: Head Technology Implementation Section	1
Director, NATO HQ CI Staff (PRB) Attn: Executive Co-ordinator	1

Strategic Commands

SACT Attn: DACOS Resources and Logistics (SR-810)	1
SACTREPEUR Attn: SO RESOURCES/NSIP/LOGS (C-0932)	1
SHAPE Attn: ACOS J6	1
Branch Chief J3 AC2 (Col W Pestel)	1
J3 AC2 (LTC Gard Andersen)	1

NATO Agencies

NSPA LR	1

NCI Agency

NSIP Liaison Officer (Mr. C. Ulsh)	1
AirC2/PO Director (Mr. E. Montalti)	1
AirC2/ PO Dep Air C2 Programme Director (Mr. M Stoltz)	1
AirC2/Chief PRB (Mr. C Romney)	1
AirC2/Chief PET and IB (Mr. S Van Meensel)	1
Legal Advisor (Mrs. S. Rocchi)	1
Acting Director Acquisition Division (Mr. T. Herway)	1
Acquisition Administrator CAB (Ms. Le Bourlot)	1
ASG/PCO (Mr. JL Guellec)	1
Registry	1

NATEX

NCIA/ACQ/0890

NATO COMMUNICATIONS AND INFORMATION AGENCY

Boulevard Léopold III
1110 Brussels
Belgium

RFQ-CO-13639-ACCS

Subject: **Acknowledgement of Receipt of Request For Quotation**

We hereby advise that we have received the request for quotation RFQ-CO-13639-ACCS on ....., together with all enclosures listed in the letter of submission.

CHECK ONE

{ } As of this date and without commitment on our part, we do intend to submit a bid.

{ } We do not intend to submit a bid.

{ } We are reviewing the requirements of the RFQ and will notify you of our decision as soon as possible.

Signature: _____

Printed Name: _____

Title: _____

Company: _____

Address: _____

_____

NATO Communications and Information Agency

RFQ-13639-ACCS

Directories and Filenames

for the Implementation of the

Enhancements to
NATO Integrated Air and Missile Defence System
Command and Control Communications

Voice Loop Communications

NCI Agency, Directories and Filenames

Rev. Orig, 11.06.2013

This Page Intentionally Left Blank.

REVISION SHEET

ECP No.	Revision	Date
INITIAL RELEASE	Original-	11.06.2013

This Page Intentionally Left Blank.

TABLE OF CONTENTS

Directories and Filenames.....1

This Page Intentionally Left Blank.

1. Directories and Filenames

Document Name	Book	Part	Chapter	Supplement	Section	Annex	Appendix	CM File Name	Revision	Date
Project Directories and Filenames								13639-BND000A0.doc		11.6.2013
Bidding Instructions	I							13639-AN000000.doc		11.6.2013
Bidding Instructions Annex A – Bidding Sheets	I							13639-ANA00000.doc		11.6.2103
Schedule of Supplies and Services	II	1			1			13639-BNA0A000.doc		11.6.2103
Contractor Activity Schedule and Payment Schedule	II	1			2			13639-BNA0B000.doc		11.6.2013
Special Terms and Conditions	II	2						13639-BNB00000.doc		11.6.2013
General Provisions	-	-	-	-	-	-	-	*NOT ISSUED*		
Statement of Work (SOW)	II	4			1			13639-BND0A000.doc		11.6.2013
SOW Annex A - Contract Data Requirements List	II	4			1	A		13639-BND0AA00.doc		11.6.2013
SOW Annex B - Data item Description	II	4			1	B		13639-BND0AB00.doc		11.6.2013
SOW Annex C - Contract Work Breakdown Structure	II	4			1	C		13639-BND0AC00.doc		11.6.2013
SOW Annex D – Site List	II	4			1	D		13639-BND0AD00.doc		11.6.2013
SOW Annex E – Test and Evaluation master Plan	II	4			1	E		13639-BND0AE00.doc		11.6.2013
SOW Annex F – Configuration Management Requirements Document	II	4			1	F		13639-BND0AF00.doc		11.6.2013
SOW Annex G – Logistics Support Concept	II	4			1	G		13639-BND0AG00.doc		11.6.2013
Procurement Specification (PS)	II	4			2			13639-BND0B000.doc		11.6.2013
PS Annex A – Purchaser Furnished Equipment	II	4			2	A		13639-BND0BA00.doc		11.6.2013
PS Annex B – Verification Cross Reference Index	II	4			2	B		13639-BND0BB00.doc		11.6.2013
PS Annex C – Voice Loop System Diagrams	II	4			2	C		13639-BND0BC00.doc		11.6.2013
Other Annexes – Applicable Documents	II	4			3	A1		13639-BND0CA00.doc		11.6.2013
Other Annexes – Glossary of Terms & Definitions	II	4			3	A2		13639-BND0CB00.doc		11.6.2013

NATO Communications and Information Agency

REQUEST FOR QUOTATION

RFQ-13639-ACCS

For the Implementation of the

Enhancements to
NATO Integrated Air and Missile Defence System
Command and Control Communications

Voice Loop Communications

BOOK I

INSTRUCTIONS TO BIDDERS

TABLE OF CONTENTS

SECTION 1 INTRODUCTION 3
1.1. Purpose 3
1.2. Scope 3
1.3. Overview of the Prospective Contract 3
1.4. Governing Rules, Eligibility, and Exclusion Provisions 4
1.5. Security 4
1.6. Documentation 5
SECTION 2 GENERAL BIDDING INFORMATION 6
2.1. Definitions 6
2.2. Eligibility and Origin of Equipment and Services 7
2.3. Bid Delivery and Bid Closing 7
2.4. Requests for Extension of Bid Closing Date 9
2.5. Purchaser's Point of Contact 9
2.6. Request for RFQ Clarifications 9
2.7. Requests for Waivers and Deviations 10
2.8. Amendment of the Request for Quotation 11
2.9. Modification and Withdrawal of Bids 11
2.10. Bid Validity 12
2.11. Bid Guarantee 12
2.12. Cancellation of Request for Quotation 14
2.13. Electronic Transmission of Information and Data 14
2.14. Supplemental Agreements 15
2.15. Notice of Limitations on Use of Intellectual Property Delivered to the Purchaser 15
SECTION 3 BID PREPARATION INSTRUCTIONS 17
3.1. General 17
3.2. Bid Package Content 17
3.3. Package Marking 18
3.4. Bid Administration Package 19
3.5. Price Quotation 20
3.6. Technical Proposal Package 22
SECTION 4 BID EVALUATION AND CONTRACT AWARD 27
4.1. General 27
4.2. Evaluation Procedure 28
4.3. Evaluation Step 1 – Administrative/Contractual Compliance 28
4.4. Evaluation Step 2 - Price Evaluation 29
4.5. Evaluation Step 3 - Technical Evaluation 32
Annex A Bidding and Cross Reference Sheets 1
Annex B Prescribed Administrative Forms and Certificates 3
Annex C Bid Guarantee - Standby Letter of Credit 1
Annex D Clarification Request Form 1

SECTION 1 INTRODUCTION

1.1. Purpose

1.1.1. The purpose of this request for quotation (RFQ) is to invite Bids for the provision of a Voice over IP (VoIP) 'Voice Loop' alerting capability to support communication between the NATO Combined Air Operations Centres (CAOC) Uedem (Germany) and Torrejon (Spain) and subordinate national Control and Reporting Centres (CRCs) across the NATO Area of Responsibility (AOR).

1.2. Scope

1.2.1. The NATO CI Agency (NCI Agency), as designated Host Nation responsible for the implementation of the Voice Loop project, is authorized to award a Contract to the successful bidder (hereinafter referred to as "Contractor").

1.2.2. Host Nation NCI Agency will achieve the Voice Loop scope as described further in Book I and Book II of the RFQ, through the procurement of equipment and services under a single Contact resulting from this International BOA Competition.

1.3. Overview of the Prospective Contract

1.3.1. The Voice Loop contract is an Urgent Requirement which, due to the standardization of the required Air Policing Air C2 'execution procedures,' under a single Air Command (AC) HQ at Ramstein (Germany) and across the Northern and Southern Air Policing Areas (APAs), requires an Operational Voice Communications capability to provide robust Command and Control (C2) of NATO Integrated Air and Missile Defence System (NATINAMDS) elements at the CAOCs and fall-back Static Air Defence Center (SADC) facility at AC HQ Ramstein and subordinate CRCs.

1.3.2. This contract is intended for the Contractor to provide the design, development, production, test and delivery of the Voice Loop Communication equipment in accordance with Book II Part 1, Schedule of Supplies and Services and Book II Part 4 Section 2 Procurement Specification.

1.3.3. Following approval by appropriate NATO Committees, award of the Contract will be made on a Firm Fixed Price Basis to the lowest compliant Bidder.

1.3.4. The target for contract award is third quarter 2013.

1.3.5. It is planned that work will commence immediately after contract award.

1.4. Governing Rules, Eligibility, and Exclusion Provisions

1.4.1. This solicitation is a Request for Quotation (RFQ) and is based on International BOA Competition. This RFQ is issued in accordance with the procedures for International Competitive Bidding set forth in the NATO document AC/4-D/2261 (1996 Edition) and the Procedures Governing BOAs set forth in the NATO document AC/4-D(2002)002 (24 June 2002).

1.4.2. Pursuant to these procedures, Bidding is restricted to companies from participating NATO member nations which have an active and signed BOA with the NCI Agency.

1.4.3. This RFQ will not be the subject of a public bid opening.

1.4.4. The successful bid pursuant to this RFQ will be that bid which is the lowest price technically compliant in accordance with the evaluation criteria. The Bid evaluation criteria and the detailed evaluation procedures are described in 0.

1.4.5. The Bidder shall refer to the Purchaser all queries for resolution of any conflicts found in information contained in this document in accordance with the procedures set forth in paragraph 2.6 "Request for RFQ Clarifications".

1.5. Security

1.5.1. The security classification of this RFQ is “NATO UNCLASSIFIED.”

1.5.2. Contractor personnel that will work at NATO sites are required to possess a security clearance of “NATO SECRET.” Contractor personnel without such a clearance, confirmed by the appropriate national security authority and transmitted to the cognisant NATO security officer in accordance with the specific instructions contained in this RFQ, will be denied access to the site. Denial of such access by the Purchaser may not be used by the Contractor as the basis for a claim of adjustment or an extension of schedule nor can the denial of access be considered a mitigating circumstance in the case of an assessment of Liquidated Damages or a determination of Termination For Default by the Purchaser.”

1.5.3. All NATO CLASSIFIED material entrusted to the Contractor shall be handled and safeguarded in accordance with applicable security regulations. The Contractor shall be able to handle and store material of "NATO SECRET" classification in his facility in the conduct of work under this Contract.

1.5.4. Bidders are advised that contract signature will not be delayed in order to allow the processing of security clearances for personnel or facilities and, should the otherwise successful Bidder not be in a position to accept the

offered Contract within a reasonable period of time, due to the fact that its personnel or facilities do not possess the appropriate security clearance(s), the Purchaser may determine the Bidder's Offer to be non-compliant and offer the Contract to the next ranking Bidder. In such a case, the Bidder who would not sign the Contract shall be liable for forfeiture of the Bid Guarantee.

1.6. Documentation

1.6.1. All documentation, including the RFQ itself, all applicable documents and any reference documents provided by the Purchaser are solely to be used for the purpose of preparing a response to this RFQ. They are to be safeguarded at the appropriate level according to their classification and reference documents are provided "as is," without any warranty as to quality or accuracy.

SECTION 2 GENERAL BIDDING INFORMATION

2.1. Definitions

2.1.1. In addition to the definitions and acronyms set in the Contract Special Provisions (Book II, Part 2) of the prospective Contract, and the definitions and acronyms set in the Clause entitled “Definitions of Terms and Acronyms” of the Contract General Provisions (Book II, Part 3) of the prospective Contract, the following terms and acronyms, as used in this Request for Quotation shall have the meanings specified below:

2.1.1.1. "Bidder": a firm, consortium, or joint venture which submits an offer in response to this solicitation. Bidders are at liberty to constitute themselves into any form of Contractual arrangements or legal entity they desire, bearing in mind that in consortium-type arrangements a single judicial personality shall be established to represent that legal entity. A legal entity, such as an individual, Partnership or Corporation, herein referred to as the “Principal Contractor”, shall represent all members of the consortium with the NCI Agency and/or NATO. The “Principal Contractor” shall be vested with full power and authority to act on behalf of all members of the consortium, within the prescribed powers stated in an irrevocable Power of Attorney issued to the “Principal Contractor” by all members associated with the consortium. Evidence of authority to act on behalf of the consortium by the “Principal Contractor” shall be enclosed and sent with the Bid. Failure to furnish proof of authority shall be a reason for the Bid being declared non-compliant.

2.1.1.2. "Compliance": strict conformity to the requirements and standards specified in this RFQ and its attachments.

2.1.1.3. "Contractor": the awardee of this solicitation of offers, who shall be responsible for the fulfilment of the requirements established in the prospective Contract.

2.1.1.4. “Firm of a Participating Country”: a firm legally constituted or chartered under the laws of, and geographically located in, or falling under the jurisdiction of a Participating Country.

2.1.1.5. “RFQ”: Request for Quotation.

2.1.1.6. “Participating Country”: any of the NATO nations contributing to the project, namely, (in alphabetical order): ALBANIA, BELGIUM, BULGARIA, CANADA, CROATIA, CZECH REPUBLIC, DENMARK, ESTONIA, FRANCE, GERMANY, GREECE, HUNGARY, ICELAND, ITALY, LATVIA, LITHUANIA, LUXEMBOURG, THE NETHERLANDS, NORWAY, POLAND, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, TURKEY, THE UNITED KINGDOM and THE UNITED STATES.

2.1.1.7. "Purchaser": the authority to issue the RFQ and/or award the contract, NATO Communications and Information Agency (NCI Agency).

2.1.1.8. "Quotation" or "Bid": a binding offer to perform the work specified in the attached prospective Contract (Book II).

2.2. Eligibility and Origin of Equipment and Services

2.2.1. As stated in paragraph 1.4.2 above, only firms from a Participating Countries are eligible to engage in this competitive Bidding process, provided that (i) they maintain an active Basic Ordering Agreement (BOA) with NCI Agency. In addition, all Contractors, Subcontractors and Manufacturers, at any tier, must be from Participating Countries.

2.2.2. None of the work, including project design, labour and services shall be performed other than by firms from and within Participating Countries.

2.2.3. No materials or items of equipment down to and including identifiable sub-assemblies shall be manufactured or assembled by a firm other than from and within a Participating Country.

2.2.4. Unless otherwise authorised by the terms of the prospective Contract, the Intellectual Property Rights for all software and documentation incorporated by the prospective Contractor and/or its Sub-contractors into the work shall vest with persons or legal entities from and within NATO participating nations and no royalties or licence fees for such software and documentation shall be paid by the Contractor to any source that does not reside within a NATO participating nation.

2.3. Bid Delivery and Bid Closing

2.3.1. All Bids shall be in the possession of the Purchaser at the address given below in paragraph 2.3.2 on/or before **14.00 hours (Brussels Time) on 09 August 2013**, at which time and date Bidding shall be closed.

2.3.2. Bids shall be delivered to the following address:

2.3.2.1. By Post:

NATO CI Agency
ACQ/AirC2 (ATTN: Ms. Veronica Reynosa)
Boulevard Leopold III
1110 Brussels, Belgium

2.3.2.2. Hand Carried Service or courier:

NATO CI Agency
ACQ/AirC2 (ATTN: Ms. Veronica Reynosa)
Bâtiment Z
Avenue du Bourget 140
1110 Brussels, Belgium

2.3.3. ***Bids submitted by electronic means are not permitted and will not be considered***. Bidders are advised that security or other personnel remaining on the premises outside of normal business hours may decline to sign or issue receipts for delivered items.

2.3.4. Late Bids

2.3.4.1. Bids which are delivered to the Purchaser after the specified time and date set forth above for Bid Closing are "Late Bids" and shall not be considered for award. Such Bids will be returned unopened to the Bidder at the Bidder's expense unless the Purchaser can determine that the Bid in question meets the criteria for consideration as specified below.

2.3.4.2. ***Consideration of Late Bid*** – The Purchaser considers that it is the responsibility of the Bidder to ensure that the Bid submission arrives by the specified Bid Closing time. Considering the number and quality of express delivery services, courier services and special services provided by the national postal systems, a late Bid shall only be considered for award under the following circumstances:

2.3.4.2.1. A Contract has not already been awarded pursuant to the Request for Quotation, and

2.3.4.2.2. The Bid was sent to the address specified in the RFQ by ordinary, registered or certified mail not later than ten (10) calendar days before the Bid closing date and the delay was due solely to the national or international postal system for which the Bidder bears no responsibility (the official postmark for ordinary and Registered Mail or the date of the receipt for Certified Mail will be used to determine the date of mailing), or

2.3.4.2.3. The Bid was hand carried, or delivered by a private courier service and the Bidder can produce a receipt which demonstrates that the delivery was made to the correct address and received by a member of the NCI Agency and the failure to be received by the Contracting Authority was due to mishandling within the Purchaser’s organisation.

2.3.4.3. A Late Bid which was hand-carried, or delivered by a private courier, for which a proper receipt cannot be produced, cannot be considered for award under any circumstances nor can late Bids which bear no post marks or for which documentary evidence of mailing date cannot be produced.

2.3.4.4. Bidders are advised that security personnel or other personnel remaining on the premises outside of normal business hours may decline to sign or issue receipts for delivered items.

2.4. Requests for Extension of Bid Closing Date

2.4.1. Bidders are informed that requests for extension to the closing date for the RFQ shall be submitted only via the point of contact indicated in paragraph 2.5.1 below. Any request for extension shall be submitted by the Bidder no later than fourteen (14) days prior to the established Bid closing date.

2.5. Purchaser's Point of Contact

2.5.1. The Purchaser point of contact for all information concerning this Request for Quotation is:

Ms. Veronica Reynosa
Acquisition Support Group, Contracting Consultant
Tel: +32.2.707.8499
Fax: +32.2.707.8770
E-mail: Veronica.Reynosa@ncia.nato.int

Alternate:

Mr. Jean-Luc Guellec, Principal Contracting Officer
Acquisition Support Group
Tel: +32.2.707.8303
Fax: +32.2.707.8770
E-mail: JeanLuc.Guellec@ncia.nato.int

2.5.2. All correspondence related to the RFQ shall be forwarded to:

NCI Agency
ACQ/AirC2
Boulevard Leopold III
1110 Brussels, Belgium
Attn: Ms Veronica Reynosa (contact details stated above)

2.6. Request for RFQ Clarifications

2.6.1. Bidders, during the solicitation period, are encouraged to query and seek clarification of any matters of a contractual, administrative and technical nature pertaining to this RFQ.

2.6.2. All requests for clarification shall be forwarded to the Purchaser using the Clarification Request Forms provided at Annex D of this Book I. Such requests shall be forwarded via email to the point of contact specified in paragraph 2.5.1 above and shall arrive not later than fourteen (14) calendar days prior to the stated "Bid Closing Date". The Purchaser is under no obligation to answer requests for clarification submitted after this time. Requests for clarification must address the totality of the

concerns of the Bidder, as the Bidder will not be permitted to revisit areas of the RFQ for additional clarification except as noted in 2.6.3 below.

2.6.3. Additional requests for clarification are limited only to the information provided as answers by the Purchaser to Bidder requests for clarification. Such additional requests shall arrive not later than seven (7) calendar days before the established Bid Closing Date.

2.6.4. The Purchaser may provide for a re-wording of questions and requests for clarification where it considers the original language ambiguous, unclear, subject to different interpretation or revelatory of the Bidder's identity.

2.6.5. Bidders are advised that subsequent questions and/or requests for clarification included in a Bid shall neither be answered nor considered for evaluation.

2.6.6. Except as provided above, all questions will be answered by the Purchaser and the questions and answers (but not the identity of the questioner) will be issued in writing to all prospective Bidders.

2.6.7. Where the extent of the changes implied by the response to a clarification request is of such a magnitude that the Purchaser deems necessary to issue revised documentation, the Purchaser will do so by the means of the issuance of a formal RFQ amendment in accordance with paragraph 2.8 below.

2.6.8. The Purchaser reserves the right to reject questions and clarification requests clearly devised or submitted for the purpose to artificially obtain an extension of the bidding time (i.e. clarifications re-submitted using different wording where such wording does not change the essence of the clarification being requested).

2.6.9. The published responses issued by the Purchaser shall be regarded as the authoritative interpretation of the Request for Quotation. Any amendment to the language of the RFQ included in the answers will be issued as an RFQ Amendment and shall be incorporated by the Bidder in his offer.

2.7. Requests for Waivers and Deviations

2.7.1. Bidders are informed that requests for alteration to, waivers or deviations from the terms and conditions of this RFQ and attached prospective Contract (Book II) will not be considered after the request for clarification process. Requests for alterations to the other requirements, terms or conditions of the Request for Quotation or the prospective Contract may only be considered as part of the clarification process set forth in paragraph 2.6 above. Requests for alterations to the specifications, terms and conditions of the Contract which are included in a Bid as submitted may be regarded by the Purchaser as a qualification or

condition of the Bid and may be grounds for a determination of non-compliance.

2.8. Amendment to the Request for Quotation

2.8.1. The Purchaser may revise, amend or correct RFQ at any time prior to the Bid Closing Date as detailed in paragraph 2.3. Any and all modifications will be transmitted to all Bidders by an official amendment designated as such and signed by the Purchaser. This process may be part of the clarification procedures set forth in paragraph 2.6 above or may be an independent action on the part of the Purchaser.

2.8.2. All such RFQ amendments issued by the Purchaser shall be acknowledged by the Bidder in its Bid by completing the "Acknowledgement of Receipt of RFQ Amendments" certificate at Annex B-2. Failure to acknowledge receipt of all amendments may be grounds to determine the Bid to be administratively non-compliant.

2.8.3. The Purchaser will consider the potential impact of amendments on the ability of prospective Bidders to prepare a Bid within the allotted time. The Purchaser may extend the "Bid Closing Date" at its discretion and such extension will be set forth in the amendment.

2.9. Modification and Withdrawal of Bids

2.9.1. Bids, once submitted, may be modified by Bidders, but only to the extent that the modifications are in writing, conform to the requirements of the RFQ, and are received by the Purchaser prior to the Bid Closing Date as detailed in paragraph 2.3. Such modifications will be considered as an integral part of the submitted Bid.

2.9.2. Modifications to Bids which arrive after the Bid Closing Date will be considered as "Late Modifications" and will be processed in accordance with the procedure detailed in paragraph 2.3.4, except that unlike a "Late Bid", the Purchaser will retain the modification until a selection is made. A modification to a Bid which is determined to be late will not be considered in the evaluation and selection process. If the Bidder submitting the modification is determined to be the successful Bidder on the basis of the unmodified Bid, the modification may then be opened. If the modification makes the terms of the Bid more favourable to the Purchaser, the modified Bid may be used as the basis of Contract award. The Purchaser, however, reserves the right to award a Contract to the apparent successful Bidder on the basis of the Bid submitted and disregard the late modification.

2.9.3. A Bidder may withdraw its Bid at any time prior to Bid Opening without penalty. In order to do so, an authorised agent or employee of the Bidder must provide an original statement of the firm's decision to withdraw the Bid and subsequently remove the Bid from the Purchaser's premises.

2.9.4. Except as provided in paragraph 2.10.4.2 below, a Bidder may withdraw its Bid after Bid Opening only by forfeiture of the Bid Guarantee.

2.10. Bid Validity

2.10.1. Bidders shall be bound by the terms of their Bid for a period of six (6) months starting from the Bid Closing Date specified in paragraph 2.3.1 above.

2.10.2. In order to comply with this requirement, the Bidder shall complete the Certificate of Bid Validity set forth in Annex B-4. Bids offering less than the period of time referred to above for acceptance by the Purchaser may be determined to be non-compliant.

2.10.3. The Purchaser will endeavour to complete the evaluation and make an award within the period referred to above. However, should that period of time prove insufficient to render an award, the Purchaser reserves the right to request an extension of the period of validity of all Bids which remain under consideration for award.

2.10.4. Upon notification by the Purchaser of such a request for a time extension, the Bidders shall have the right to:

2.10.4.1. accept this extension of time in which case Bidders shall be bound by the terms of their offer for the extended period of time and the Bid Guarantee and Certificate of Bid Validity extended accordingly; or

2.10.4.2. refuse this extension of time and withdraw the Bid, in which case the Purchaser will return to the Bidder its Bid Guarantee in the full amount without penalty.

2.10.5. Bidders shall not have the right to modify their Bids due to a Purchaser request for extension of the Bid validity unless expressly stated in such request.

2.11. Bid Guarantee

2.11.1. The Bidder shall furnish with his Bid a guarantee in an amount equal to Two Hundred Thousand Euro (€200,000). The Bid Guarantee shall be substantially similar to Annex C as an irrevocable, unqualified and unconditional Standby Letter of Credit (SLC) issued by a Belgian banking institution fully governed by Belgian legislation or issued by a non-Belgian financial institution and confirmed by a Belgian banking institution fully governed by Belgian legislation. In the latter case signed original letters from both the issuing institution and the confirming institution must be provided. The confirming Belgian bank shall clearly state that it will guarantee the funds, the drawing against can be made by the NCI Agency at its premises in Belgium. Bid Guarantees shall be made payable to the Treasurer, NATO CI Agency.

2.11.2. Alternatively, a Bidder may elect to post the required Guarantee by certified cheque. If this method is selected, Bidders are informed that the Purchaser will cash the cheque on the Bid Closing Date or as soon as possible thereafter.

2.11.3. If the Bid Closing Date is extended after a Bidder's financial institution has issued a Bid Guarantee, it is the obligation of the Bidder to have such Bid Guarantee (and confirmation, as applicable) extended to reflect the revised Bid Validity date occasioned by such extension.

2.11.4. Failure to furnish the required Bid Guarantee in the proper amount, and/or in the proper form and/or for the appropriate duration by the Bid Closing Date may be cause for the Bid to be determined non-compliant.

2.11.5. In the event that a Bid Guarantee is submitted directly by a banking institution, the Bidder shall furnish a copy of said document in the Bid Administration Package.

2.11.6. The Purchaser will make withdrawals against the amount stipulated in the Bid Guarantee under the following conditions:

2.11.6.1. The Bidder has submitted a Bid and, after Bid Closing Date (including extensions thereto) and prior to the selection, the compliant Bid determined to represent the lowest price technically compliant, withdraws his Bid, or states that he does not consider his Bid valid or agree to be bound by his Bid, or

2.11.6.2. The Bidder has submitted a compliant Bid determined by the Agency to represent the lowest price technically compliant, but the Bidder declines to sign the Contract offered by the Agency, such Contract being consistent with the terms of the Request for Quotation.

2.11.6.3. The Purchaser has offered the Bidder the Contract for execution but the Bidder has been unable to demonstrate compliance with the security requirements of the Contract within a reasonable time.

2.11.6.4. The Purchaser has entered into the Contract with the Bidder but the Bidder has been unable or unwilling to provide the Performance Guarantee required under the terms of the Contract within the time frame required.

2.11.7. Bid Guarantees will be returned to Bidders as follows:

2.11.7.1. to non-compliant Bidders forty-five (45) days after notification by the Purchaser of a non-compliant Bid (except where such determination is challenged by the Bidder; in which case the Bid Guarantee will be returned forty-five (45) days after a final determination of non-compliance);

2.11.7.2. to all other unsuccessful Bidders within thirty (30) days following the award of the Contract to the successful Bidder;

2.11.7.3. to the successful Bidder upon submission of the Performance Guarantee required by the Contract or, if there is no requirement for such a Performance Guarantee, upon Contract execution by both parties.

2.11.7.4. pursuant to paragraph 2.10.4.2 above.

2.11.8. "Standby Letter of Credit" or "SLC" as used herein, means a written commitment by a Belgian financial institution either on its own behalf or as a confirmation of the Standby Letter of Credit issued by a non-Belgian bank to pay all or part of a stated amount of money, until the expiration date of the letter, upon presentation by the Purchaser of a written demand therefore. Neither the financial institution nor the Contractor can revoke or condition the Standby Letter of Credit. The term "Belgian financial institution" includes non-Belgian financial institutions licensed to operate in Belgium.

2.12. Cancellation of Request for Quotation

2.12.1. The Purchaser may cancel, suspend or withdraw for re-issue at a later date this RFQ at any time prior to Contract award. No legal liability on the part of the Purchaser for payment of any sort shall arise and in no event will any Bidder have cause for action against the Purchaser for the recovery of costs incurred in connection with preparation and submission of a Bid in response to this RFQ.

2.13. Electronic Transmission of Information and Data

2.13.1. The Purchaser will endeavour to communicate answers to requests for clarification and amendments to this RFQ to the prospective Bidders as soon as practicable.

2.13.2. Bidders are cautioned that except for those cases in which electronic transmission of documentation is not permissible (i.e. documents with security classification mandating specific transmission methods) the Purchaser will rely exclusively on electronic means (i.e. electronic mail communication) to manage all correspondence related to this RFQ, including RFQ amendments and clarifications.

2.13.3. Notwithstanding paragraph 2.13.2 above and subject to feasibility, prospective Bidders may request to be notified also by fax or regular mail when RFQ correspondence is released to them. Such requests shall be submitted to the points of contact specified in paragraph 2.5.1 above. Such requested method of notification shall not be construed as the Bidders' right to obtain an extension of the Bid Closing Date.

2.13.4. Bidders shall note that where voluminous documentation is to be transmitted the Purchaser will consider electronic transmission as the

sole feasible manner to promptly notify all Bidders pursuant to the prescription in paragraph 2.13.1 above. Consequently, in such cases, the Purchaser will notify the Bidders' of the impossibility to resort to alternative methods of transmissions if this has been requested.

2.14. Supplemental Agreements

2.14.1. Bidders are required, in accordance with the certificate at Annex B-7 of these Instructions to Bidders, to disclose any prospective Supplemental Agreements that are required by national governments to be executed by NATO/ NCI Agency as a condition of Contract performance.

2.14.2. Supplemental Agreements are typically associated with, but not necessarily limited to, national export control regulations, technology transfer restrictions and end user agreements or undertakings.

2.14.3. Bidders are cautioned that failure to provide full disclosure of the anticipated requirements and the terms thereof, to the best of the Bidder's knowledge and experience, may result in the Purchaser withholding award of the Contract or cancelling an executed Contract if it is discovered that the terms of such Supplemental Agreements contradict salient conditions of the Prospective Contract to the extent that either key objectives cannot be accomplished or basic Contract principles and Purchaser rights have been abridged.

2.15. Notice of Limitations on Use of Intellectual Property Delivered to the Purchaser

2.15.1. Bidders are instructed to review the Contract General Provisions of their BOA which has been augmented by Clause 2.23 of the Contract Special Provisions set forth in Part II of Book II herein. These Clauses set forth the definitions, terms and conditions regarding the rights of the Parties concerning Intellectual Property developed and/or delivered under this Contract or used as a basis of development under this Contract.

2.15.2. Bidders are required to disclose, in accordance with Annex B-9, Annex B-10, the Intellectual Property proposed to be used by the Bidder that will be delivered with either Background Intellectual Property Rights or Third Party Intellectual Property Rights. Bidders are required to identify such Intellectual Property and the basis on which the claim of Background or Third Party Intellectual Property is made.

2.15.3. Bidders are further required to identify any restrictions on Purchaser use of the Intellectual Property that is not in accordance with the definitions and rights set forth in the Contract General Provisions, augmented by the Contract Special Provisions, or any other provision of the Contract concerning use or dissemination of such Intellectual Property.

2.15.4. Bidders are reminded that restrictions on use or dissemination of Intellectual Property conflicting with Clause 30 of the Contract General

Provisions, augmented by Clause 13 of the Contract Special Provisions or with the objectives and purposes of the Purchaser as stated in the Prospective Contract shall result in a determination of a non-compliant Bid.

SECTION 3 BID PREPARATION INSTRUCTIONS

3.1. General

3.1.1. Bidders shall prepare and submit their Bid in accordance with the requirements and format set forth in this RFQ. Compliance with all Bid submission requirements is mandatory. Failure to submit a Bid in conformance with the stated requirements may result in a determination of non-compliance by the Purchaser and the elimination of the Bid from further consideration.

3.1.2. Bidders shall prepare a complete Bid which comprehensively addresses all requirements stated herein. The Bid shall demonstrate the Bidder's understanding of the terms, conditions and requirements of the RFQ and his ability to provide all the services and deliverables listed in the Schedules of the prospective Contract.

3.1.3. The Bidder shall not restate the RFQ requirements in confirmatory terms only. The Bidder must clearly describe what is being offered and how the Bidder will meet all RFQ requirements. Statements in confirmatory terms only will be sufficient grounds for determining the bid to be non-compliant.

3.1.4. Partial Bids will be declared non-compliant.

3.1.5. Bidders are advised that the Purchaser reserves the right to incorporate the successful Bidder's Proposal in whole or in part by reference in the resulting Contract.

3.1.6. If no specific format has been established for electronic versions, soft copies of the Bid documentation to be provided in accordance with paragraph 3.2 below, Bidders shall deliver this type of documentation in an electronic format which is best suited for review and maintenance by the Purchaser (e.g., Project Master Schedule in MS Project format, Project Highlight Reports in MS Word).

3.1.7. In the event of a discrepancy between the soft and hard copies of the Bid documentation to be provided in accordance with paragraph 3.2 below, the hard copy will be considered as the authoritative bid document for the purpose of evaluation and take precedence.

3.1.8. All documentation submitted as part of the Bid shall be classified no higher than "NATO UNCLASSIFIED".

3.1.9. All documentation submitted as part of the Bid shall be in English.

3.2. Bid Package Content

3.2.1. The complete Bid shall consist of three distinct and separated parts described in the following subparagraphs. Detailed requirements for the

structure and content of each of these packages are contained in these Bidding Instructions.

3.2.2. ***The Bid Administration Package***, containing one (1) Original paper copy and one (1) soft copy of the documents specified in paragraph 3.4 below.

3.2.3. ***The Price Quotation***, containing two (2) paper copies (one (1) Original and one (1) copy) and one (1) soft copy **in MS Excel format** of the Price Quotation specified in paragraph 3.5.

3.2.4. ***The Technical Proposal Package***, structured as mentioned below and as specified in paragraph 3.6. Each Part shall be clearly identified (separate binder or file) for ease of segregation and handling and shall each be submitted in one (1) hard copy and four (4) soft copies.

3.2.4.1. Explanation of how the Bidder will deliver the Project Management deliverables in accordance with the SOW

3.2.4.2. Explanation of how the Bidder will carryout Site Survey activities

3.2.4.3. Explanation of how the Bidder will conduct Design, Test and Implementation Stratergy to meet the requirements detailed in the Procurement Specification (PS) and SOW.

3.2.4.4. Explain of how the Bidder will conduct the Site Installations

3.2.4.5. Explanation of how the Bidder will meet the Project Test Evaluation and Acceptance requiremetns of the SOW

3.2.4.6. Explanation of how the Bidder will meet the Project Integrated Logistics Support Concept in accordance with Annex E of the SOW.

3.2.4.7. Provide full Hardware specifications of the Bidders proposed technical solution that meet the Voice Loop Project requirements.

3.2.4.8. Provide full Software specifications of the Bidders proposed technical solution that meet the Voice Loop Project requirements.

3.3. Package Marking

3.3.1. The separate parts of the Bid shall be placed in outer containers for delivery. All outer containers into which Bidding documents are placed shall be opaque or wrapped in opaque paper, sealed and identified with the following markings:

3.3.1.1. Name and address of the Bidder,

3.3.1.2. The words “SEALED BID” followed by the reference “RFQ-13639-ACCS”;

PACKAGE X of Y (1 of 3, 2 of 3, etc.)

NOTIFY MS V.REYNOSA (X.8499) / MR. J-L GUELLEC (X.8303) UPON RECEIPT

3.3.2. Each of the Bid parts placed in the outer container(s) shall be separately wrapped (multiple copies of the same document may be wrapped together), and marked as follows:

3.3.2.1. Name and address of the Bidder,

3.3.2.2. The words “SEALED BID” followed by the reference “RFQ-13639-ACCS”;

3.3.2.3. The appropriate package marking, i.e. “Bid Administration”, “Price Quotation”, “Technical Proposal”.

3.4. Bid Administration Package

3.4.1. The Package must include the original of the Bid Guarantee required by paragraph 2.11 of the Bidding Instructions. If the Bid Guarantee is sent to the Purchaser directly from the Bidder's bank, a letter, in lieu of the actual Guarantee, shall be included specifying the details of the transmittal. Bidders are reminded that the Bid Guarantee shall reflect any extensions to the Bid Validity Date due to extensions in the Bid Closing Date.

3.4.2. Bidders shall complete and return the RFQ/Bid Cross-Reference Sheets covering the full Prospective Contract and Bidding Instructions where required. It is the Bidders responsibility to ensure that the submitted RFQ Cross-Reference Table covers all sections of the RFQ contractual and technical requirements. The Cross-Reference Sheets are detailed in Annex A-2.

3.4.3. The Package shall include the certificates set forth in the Annex to these Bidding Instructions, signed in the original by an authorised representative of the Bidder. The text of the certificates must not be altered in any way. The certificates are as follows:

3.4.3.1. Annex B-1 (Certificate of Legal Name of Bidder)

3.4.3.2. Annex B-2 (Acknowledgement of Receipt of RFQ Amendments)

3.4.3.3. Annex B-3 (Certificate of Independent Determination)

3.4.3.4. Annex B-4 (Certificate of Bid Validity)

3.4.3.5. Annex B-5 (Certificate of Exclusion of Taxes, Duties and Charges)

3.4.3.6. Annex B-6 (Comprehension and Acceptance of Contract Special and General Provisions)

3.4.3.7. Annex B-7 (Disclosure of Requirements for NCI Agency Execution of Supplemental Agreements) with the prospective text of such Agreements, as applicable.

3.4.3.8. Annex B-8 (List of Prospective Subcontractors)

3.4.3.9. Annex B-9 (Bidder Background IPR)

3.4.3.10. Annex B-10(List of Subcontractor IPR)

3.4.3.11. Annex B-11 (Certificate of Origin of Equipment, Services, and Intellectual Property)

3.4.3.12. Annex B-12 (List of Proposed Key Personnel)

3.4.3.13. Annex B-13 (Index and Certificate of Compliance of Administrative Certificates)

3.5. Price Quotation

3.5.1. Package Contents

3.5.1.1. This envelope must contain the following documentation and media in the quantities provided in paragraph 3.2.3 above:

3.5.1.1.1. The completed set of sheets contained in the electronic file "RFQ-13639-ACCS_BookI_Bidding Sheets.xlsx" submitted as part of this RFQ.

3.5.1.1.2. CD-ROM or DVD containing an electronic version, **in MS Excel format**, of the documentation stated in paragraph 3.5.1.1.1 above.

3.5.2. General Rules

3.5.2.1. Bidders shall prepare their Price Quotation by completing the Bidding Sheets referred in paragraph 3.5.1.1.1 above, in accordance with the instructions specified in Annex A-1. Having completed the schedule of supplies and services tab of the Bidding Sheets, this information shall be the same as the Schedule of Supplies and Deliverables of the RFQ (see Book II, Part 1, Section 1).

3.5.2.2. The structure of the Bidding Sheets shall not be changed, other than as indicated elsewhere, nor should any quantity or item description in the Bidding Sheets. The currency(ies) of each Contract Line Item and sub-item shall be shown. The prices provided shall be intended as the comprehensive total price offered for the fulfilment of all requirements as expressed in the RFQ documentation including but not limited to those expressed in the SOW.

3.5.2.3. When completing the Bidding Sheets the Bidder shall insert information in all yellow cells of the Bidding Sheets and complete the Pricing

Summary as instructed. A price for each specified element needs to be supplied on each CLIN. Prices should not be grouped. The prices and quantities entered on the document shall reflect the total items required to meet the contractual requirements. The total price shall be indicated in the appropriate columns and in the currency quoted. If the price of a line item is expressed in different currencies, these shall be identified, and there shall be as many totals on that line item as there are currencies. In preparing the Price Quotation, Bidders shall ensure that the prices of the Sub-items total the price of the major item of which they constitute a part.

3.5.2.4. Bidders shall furnish Firm Fixed Prices for all required items in accordance with the format set forth in the Instructions for preparation of the Bidding Sheets. Partial quotations shall be rejected.

3.5.2.5. Bidders shall provide a breakdown list of all direct material equipment items and software related costs to this effort. Provide this information in the bidding sheets CLIN Price Breakdown sheet under the Direct Material breakdown.

3.5.2.6. Offered prices shall not be “conditional" in nature. Any comments supplied in the Bidding Sheets which are conditional in nature, relative to the offered prices, may result in a determination that the Bid is non-compliant.

3.5.2.7. Bidders are responsible for the accuracy of their Price Quotations. Price Quotations that have apparent computational errors may have such errors resolved in the Purchaser’s favour or, in the case of gross omissions, inconsistencies or errors, may be determined to be non-compliant. In the case of inconsistencies between the electronic version of the Bidding Sheets and the paper “hard copy” of the Bidding Sheets, the “hard copy” will be considered by the Purchaser to have precedence over the electronic version.

3.5.2.8. Bidders shall quote in their own national currency or in EURO. Bidders may also submit bids in multiple currencies including other NATO member states' currencies under the following conditions:

3.5.2.8.1. the currency is of a "participating country" in the project, and

3.5.2.8.2. the Bidder can demonstrate, either through sub-contract arrangements or in its proposed work methodology, that it will have equivalent expenses in that currency. All major subcontracts and their approximate anticipated value should be listed on a separate sheet and included with the Price Quotation.

3.5.2.9. The Purchaser, by virtue of his status under the terms of Article IX and X of the Ottawa Agreement, is exempt from all direct and indirect taxes (incl. VAT) and all customs duties on merchandise imported or exported.

3.5.2.10. Bidders shall therefore exclude from their price Bid all taxes, duties and customs charges from which the Purchaser is exempted by international agreement and are required to certify that they have done so through execution of the Certificate at Annex B-5.

3.5.2.11. Unless otherwise specified in the instructions for the preparation of Bidding Sheets in Annex A-1, all prices quoted in the proposal shall be on the basis that all deliverable items shall be delivered "Delivery Duty Paid (DDP)" in accordance with the International Chamber of Commerce INCOTERMS ® 2010.

3.5.2.12. The Bidder's attention is directed to the fact that Price Quotation shall contain no document and/or information other than the priced copies of the Bidding Sheets. Any other document will not be considered during evaluation and may cause for a determination of non-compliance by the Purchaser.

3.6. Technical Proposal Package

3.6.1. The Bidder shall prepare and submit a Technical Proposal in accordance with the instructions illustrated in this section.

3.6.2. The Bidder shall construct its' technical proposal by differentiating the different domain of activities to perform. The technical proposal will as a minimum address in different paragraphs the following domains:

3.6.2.1. Project management

3.6.2.1.1. The Bidder shall provide as part of the proposal a draft extract of the Project Management Plan (PMP) as per paragraph 3.11.1 of the SOW, which:

3.6.2.1.1.1 shall not exceed ten (10) A4 pages/sides.

3.6.2.1.1.2 shall detail the Bidder's proposed management structure.

3.6.2.1.1.3 shall identify the top three (3) risks for the implementation strategy.

3.6.2.1.1.4 shall include sub-contract activities, detailing the management responsibilities of any/all sub-contractors, defining which project tasks the sub-contractors shall be responsible, shall address the relationship associated control mechanisms to support quality, change and configuration procedures in delivering products.

3.6.2.1.1.5 shall address the management of the coordination with NCI Agency Brussels, in particular during the design, installation, migration and test activities.

3.6.2.1.1.6 shall include a section showing the breakdown of the project (from contract award through project closure) into various management stages.

3.6.2.1.1.7 shall explain by who and how a risk register will be maintained throughout the project's life in accordance with paragraph 3.11.4 of the SOW.

3.6.2.1.1.8 shall address how the PMP shall be maintained throughout the life of the project.

3.6.2.1.2. The Bidder shall provide information about the project team's key personnel.

3.6.2.1.2.1 The Bidder shall propose staff with supporting CV/resume for the key personnel positions: Project Manager and Technical Lead.

3.6.2.1.2.2 Each key personnel's CV/resume shall detail the position with the SOW's requirements as per paragraphs 3.11.3 of the SOW, in particular with records of experience of for similar projects.

3.6.2.1.2.3 The Bidder shall provide evidence that clearly shows that all key personnel possesses NATO Secret clearances by Bid submission which are valid for at least one (1) year from bid closing date.

3.6.2.1.2.4 The Bidder shall provide documentary evidence that clearly shows that all installation personnel will possess NATO Secret clearances within thirty (30) days after bid closing which are valid for at least one (1) year from bid closing date.

3.6.2.2. Site survey

3.6.2.2.1. The Bidder shall explain his organisation, method and planning to perform the Site Survey iaw paragraph 3.6.3.1of the SOW.

3.6.2.2.2. The Bidder shall explain how he proposes to minimise risk in case assumptions are not validated during the Site Survey.

3.6.2.2.3. The Bidder shall provide a template of the Site Survey workbook document that he expects to use during the project. The proposed template shall provide a comprehensive outline of the site survey and provide a small narrative of what information/details will be provided in the different Site Survey's sections.

3.6.2.3. Design & implementation

3.6.2.3.1. The Bidder shall provide a template of the Design documentation that he shall produce during the engineering activity for the purpose of the Design approval.

3.6.2.3.2. The Bidder shall explain his understanding of the totality of the solution to meet the requirements and scope of the project as described in Procurement Specifications (Book II, Part 4, Section 2).

3.6.2.3.3. The Bidder shall provide an extract of the draft Master Integrated Project Schedule (MIPS), in accordance with 3.11.5 of the SOW, which:

3.6.2.3.3.1 shall contain a draft Contract Work Breakdown Structure (CWBS) in accordance with 3.11.6 of the SOW,.

3.6.2.3.3.2 shall contain a draft Project Delivery Schedule (PDS) showing the different stages to implement the delivery of the Voice Loop Capability. The Contractor should identify key milestone dates when they expect to deliver the the SADC and CAOC capabilities and subsequent block deliveries of the Voice Loop at the subordinate CRCs. As a project schedule, the purchaser expects an Initial operational capability date of 1 Jul 2014 across the whole NATO AOR.

3.6.2.3.3.3 shall contain the template to be used to report project's progress.

3.6.2.4. Site Installation

3.6.2.4.1. The Bidder shall provide documentary evidence (with references consisting of no more than 6 A4 sides of paper) of experiences on installing VoIP Voice Loop Communications Systems with other defence or military organizations or within closed environment civilian industry domains e.g. banks or major communication service providers across multi-site European national locations.

3.6.2.4.2. The Bidder shall demonstrate, for the project's installation team, proof of knowledge of the equipment (Hardware & Software) and of their installation and configuration.

3.6.2.4.3. The Bidder shall explain the overall installation concept plan, covering the preparation for installation, the performing of installation, the identification of major challenges and the identification and mitigation of top three (3) implantation risks.

3.6.2.4.4. The Bidder shall explain what solution or method he proposes to use to limit operational service disruption and mitigate risks during the installation phase.

3.6.2.5. Test and Acceptance

3.6.2.5.1. The Bidder shall provide an overview detailing their Test & Evaluation Master Plan (TEMP) as per Annex E of the SOW, which shall explain the tests to be performed for deliverable components by site type (e.g. Combined Air Operations Centre (CAOC), Control and Reporting Centre (CRC) and fall-back Static Air Defence Centre (SADC)) and provide system for conformance, performance and acceptance.

3.6.2.5.2. The Bidder shall provide an example of the kind of report produced after testing and for acceptance purpose for approval by the purchaser. The report should consist of a summary of no more than 4 sides of A4 paper and an individual page of A4 for Fault or Test for each test item/evolution.

3.6.2.5.3. The Bidder shall explain the organisation and method used to perform tests and acceptance activities (as well as to solve discrepancies from previous acceptance testing) and handover to NCI Agency Brussels.

3.6.2.5.4. The Bidder shall demonstrate his knowledge and experience of security accreditation process.

3.6.2.5.5. The Bidder shall explain his knowledge of the kind of security documentation to be produced for security accreditation purpose.

3.6.2.5.6. The Bidder shall provide an exemplar of their Security Test and Evaluation Plan (ST&E Plan) and shall provide a template of the test report conducted in accordance to the ST&E Plan.

3.6.2.6. Integrated Logistics Support

3.6.2.6.1. The Bidder shall provide an outline structure for their Integrated Logistics Support Plan (ILSP) to demonstrate his understanding of the scope of the ILS programme in accordance with Annex G and Logistics Support Concept (LSC) of the SOW.

3.6.2.6.2. The Bidder shall submit an Initial Recommended Spare Parts List (RSPL) by site type. e.g. CAOC, CRC and SADC.

3.6.2.6.3. The Bidder shall explain the content of the warranty he proposes to provide.

3.6.2.6.4. The Bidder shall explain his understanding of the customer support needs and the customer support he proposes to provide. In particular, the Bidder shall explain the organisation he proposes to manage incidents and problems and to manage release.

3.6.2.6.5. The Bidder shall provide summary evidence of the organisation and skills available to address the ILS requirements, particularly: customer support, maintenance support, Configuration Management, supply support, training, technical documentation.

3.6.2.6.6. The Bidder shall provide an example of the kind of as-built drawing and technical manual that shall be produced to fulfil the documentation requirements of the project in accordance with 3.6.3.7 and 3.10.3.1 of the SOW respectively.

3.6.2.6.7. The Bidder shall provide an example and explanation of the training manual / presentation material he will use to perform training course.

3.6.2.6.8. The Bidder shall explain how he plans to capture the training needs during the site survey in order to establish the training objectives and course outline.

3.6.2.7. Hardware specifications

3.6.2.7.1. The Bidder shall provide a grid for each equipment with their minimum technical specifications as detailed in Section 3.3.1of the SOW, and the proposed technical specifications, including manufacturer names and part number, and explanations about the choice of manufacturer and deviations in excess of the minimum requirements as applicable.

3.6.2.8 Software Specifications

3.6.2.8.1 The Bidder shall provide a grid for each item of software with their minimum technical specifications as detailed in Section 3.3.2 of the SOW, and the proposed technical specifications, including manufacturer names and part number, and explanations about the choice of manufacturer and deviations in excess of the minimum requirements as applicable.

SECTION 4 BID EVALUATION AND CONTRACT AWARD

4.1. General

4.1.1. The evaluation of Bids will be made by the Purchaser solely on the basis of the requirements specified in this Request for Quotation (RFQ).

4.1.2. The evaluation of Bids and the determination as to the compliance or technical adequacy of the supplies and services offered will be based only on that information furnished by the Bidder and contained in his bid. The Purchaser shall not be responsible for locating or securing any information that is not identified in the Bid.

4.1.3. To ensure that sufficient information is available, the Bidder shall furnish with his bid all information appropriate to provide a complete description of the work which will be performed and/or the supplies to be delivered. The information provided shall be to a level of detail necessary for the Purchaser to determine exactly what the Bidder proposes to furnish and whether the offer meets the technical, administrative and contractual requirements of this RFQ.

4.1.4. During the evaluation, the Purchaser may request clarification of the Bid from the Bidder and the Bidder shall provide sufficient detailed information in connection with such requests as to permit the Purchaser to make a final assessment of the Bid based upon the facts. The purpose of such clarifications will be to resolve ambiguities in the Bid and to permit the Bidder to state his intentions regarding certain statements contained therein. The purpose of the clarification stage is not to elicit additional information from the Bidder that was not contained in the original submission or to allow the Bidder to supplement cursory answers or omitted aspects of the Bid. The Bidder is not permitted any cardinal alteration of the Bid regarding technical matters and shall not make any change to his price quotation at any time.

4.1.5. The Bidder’s prompt response to the Purchaser’s clarification requests is important and therefore failure to provide the requested clarifications within the time-limits set forth in the specific Clarification Requests (minimum 24 hours next working day) may cause the Bid to be deemed non-compliant.

4.1.6. The Purchaser reserves the right, during the evaluation and selection process, to verify any statements made concerning experience, facilities, or existing designs or materials by making a physical inspection of the Bidder's facilities and capital assets and by interviewing Key Personnel. Physical inspections and interviews shall also apply to assertions in the proposal made on behalf of proposed Subcontractors. The Bidder shall be responsible for providing access to his own or Subcontractors' facilities and personnel.

4.1.7. The contract resulting from this RFQ will be awarded to the Bidder whose offer, as evaluated by the Purchaser, is the lowest priced bid in compliance with the requirements of this RFQ. The evaluation will be conducted in accordance with the Procedures Governing BOAs set forth in the NATO document AC/4-D(2002)002 (24 June 2002). Evaluation of this RFQ will be conducted in accordance with the "One Envelope" procedure in which the Price Proposal of each administratively compliant Bidder is evaluated first, and only the Technical Proposal of the apparent lowest priced bid is then evaluated for compliance with the technical requirements of the RFQ. Bidders that are determined to have submitted non-compliant bids will be so notified and will have an opportunity to challenge such a determination. In such a case the technical proposal of the Bidder who has submitted the apparent second lowest priced bid will be evaluated, and so on. The Bidder who has offered the lowest priced, technically compliant bid will then be offered the contract for award

4.2. Evaluation Procedure

4.2.1. The evaluation will be done as described below:

4.2.1.1. Step 1: Administrative/Contractual Compliance

4.2.1.1.1. Bids received will be reviewed for compliance with the mandatory administrative requirements specified in paragraph 4.3. Bids not meeting all of the mandatory administrative requirements may be determined to be non-compliant and not considered for further evaluation.

4.2.1.2. Step 2: Price Evaluation

4.2.1.2.1. The Price Quotations of all Bids not considered non-compliant under the previous step will be opened and evaluated in accordance with paragraph 4.4.

4.2.1.3. Step 3: Technical Evaluation

4.2.1.3.1. In Step 3 the Technical Proposal of the lowest-priced Bid will be opened and evaluated in accordance with paragraph 4.5.

4.3. Evaluation Step 1 – Administrative/Contractual Compliance

4.3.1. Prior to commencement of the Price and Technical evaluation, Bids will be reviewed for compliance with the Bid Submission Requirements of this RFQ. These are as follows:

4.3.1.1. The Bid was received by the Bid Closing Date and Time,

4.3.1.2. The Bid was packed and marked properly,

4.3.1.3. The Bid Administration Package contains the documentation listed in paragraph 3.4 above and complies with the formal requirements established in paragraph 3.1 above,

4.3.2. A Bid that fails to conform to the above requirements may be declared non-compliant and may not be evaluated further by the Purchaser.

4.3.3. If it is discovered, during either the Price or Technical evaluation, that the Bidder has taken exception to the Terms and Conditions of the Prospective Contract, or has qualified and/or otherwise conditioned his offer on a modification or alteration of the Terms and Conditions or the language of the Statement of Work, the Bidder may be determined to have submitted a non-compliant bid.

4.3.4. Bids that are determined to be administratively compliant will proceed to Step 2, Price Evaluation.

4.4. Evaluation Step 2 - Price Evaluation

4.4.1. The Bidder's Price Quotation will be first assessed for compliance against the following standards:

4.4.1.1. The Price Quotation meets the requirements for preparation and submission of the Price Quotation set forth in the Bid Preparation Section and the Instructions for Preparation of the Bidding Sheets in Annex A-1, in particular.

(a) The Bidder has furnished Firm Fixed Prices for all items listed.

(b) All pricing data, i.e., quantities, unit prices, has been provided as reflected in the Bidding Sheets.

(c) Bid prices include all costs for items supplied, delivered, and supported.

(d) All prices have been accurately entered into appropriate columns, and accurately totalled.

(e) The Bidder has provided accurate unit price (where required) and total price for each line item.

(f) The Bidder has provided accurate unit price and total price of each of the sub-items she/he added (if any).

(g) The grand total is accurate.

(h) The currency of all line items has been clearly indicated.

(i) The Bidder has quoted in his own national currency or in the host nation currency, Euros. Where multiple currencies including other NATO member states' currencies are quoted, the conditions of 3.5.2.3 and 3.5.2.7 are met.

(j) The Bidder has indicated that in accordance with the treaties governing the terms of business with NATO, he has excluded from his prices all taxes, duties and customs charges from which the Purchaser has been exempted.

(k) Price quotes for each individual item(s), and totalled prices are accurate and realistic (based on historic data, and/or market and competitive trends in the specified industrial sector(s)).

4.4.1.2. Detailed pricing information has been provided and is adequate, accurate, traceable, and complete.

4.4.1.3. The Price Quotation meets requirements for price realism and balance as described below in paragraph 4.4.4.

4.4.2. A Bid which fails to meet the compliance standards defined in this section may be declared non-compliant and may not be evaluated further by the Purchaser.

4.4.3. Basis of Price Comparison

4.4.3.1. The Purchaser will convert all prices quoted into EURO for purposes of comparison and computation of price scores. The exchange rate to be utilised by the Purchaser will be the average of the official buying and selling rates of the European Central Bank at close of business on the last working day preceding the Bid Closing Date.

4.4.3.2. The Price comparison will be based on the offered Grand Total Firm Fixed Price of the basic + option Contract which comprises **CLINs 1 to 5** in the Bidding Sheets**.**

4.4.4. Price Realism

4.4.4.1. Should the Lowest Offered Price appear to be substantially different from the next lowest prices offered, the Purchaser will review the Price Quotation to determine if a reasonable explanation for the differential is apparent.

4.4.4.2. In those cases in which the prices quoted in relation with this Request for Quotation appear to be unreasonably low in relation to the performance required under the prospective Contract and/or the level of effort associated with the tasks, the Purchaser will reserve the right to request the Bidder clarifications aimed to demonstrate the rationale for such circumstances.

4.4.4.3. Indicators of an unrealistically low Bid may be the following, amongst others:

4.4.4.3.1. Labour Costs that, when amortised over the expected or proposed direct labour hours, indicate average labour rates far below those prevailing in the Bidder’s locality for the types of labour proposed.

4.4.4.3.2. Direct Material costs that are considered to be too low for the amounts and types of material proposed, based on prevailing market prices for such material.

4.4.4.3.3. Numerous Line Item prices for supplies and services that are provided at no cost or at nominal prices.

4.4.4.4. If the Purchaser has reason to suspect that a Bidder has artificially debased its prices in order to secure Contract award, the Purchaser will request clarification of the Bid in this regard and the Bidder shall provide explanation on one of the following bases:

4.4.4.4.1. An error was made in the preparation of the price quotation. In such a case, the Bidder must document the nature of the error and show background documentation concerning the preparation of the price quotation that makes a convincing case that a mistake was made by the Bidder. In such a case, the Bidder shall petition the Purchaser to either remain in the competition or accept the Contract at the offered price, or to withdraw from the competition.

4.4.4.4.2. The Bidder has a competitive advantage due to prior experience or industrial/technological processes that demonstrably reduce the costs of Bidder performance and therefore the price offered is realistic. Such an argument must support the technical proposal offered and convincingly and objectively describe the competitive advantage and the net savings achieved by this advantage over standard market practices and technology.

4.4.4.4.3. The Bidder recognises that the submitted price quotation is unrealistically low compared to its cost of performance and, for business reasons, the Bidder is willing to absorb such a loss. Such as statement can only be made by the head of the business unit submitting the Bid and will normally be made at the level of Chief Operating Officer or Chief Executive Officer. In such a case, the Bidder shall estimate the potential loss and show that the financial resources of the Bidder are adequate to withstand such reduction in revenue.

4.4.4.5. If a Bidder fails to submit a comprehensive and compelling response on one of the bases above, the Purchaser may determine the Bid submitted as non-compliant. If the Bidder responds on the basis of 4.4.4.4.1 above and requests to withdraw from the competition, the Purchaser may, depending on the nature and gravity of the mistake, allow the Bidder to withdraw.

4.4.4.6. If the Purchaser accepts the Bidder's explanation of mistake in paragraph 4.4.4.4.1 and allows the Bidder to accept the Contract at the offered price, or the Purchaser accepts the Bidder's explanation pursuant to paragraph 4.4.4.4.3 above, the Bidder shall agree that the supporting pricing data submitted with his Bid will be incorporated by

reference in the resultant Contract. The Bidder shall agree as a condition of Contract signature, that the pricing data will be the basis of determining fair and reasonable pricing for all subsequent negotiations for modifications of or additions to the Contract and that no revisions of proposed prices will be made.

4.4.4.7. If the Bidder presents a convincing rationale pursuant to paragraph 4.4.4.4.2 above, no additional action will be warranted. The Purchaser, however, reserves its right to reject such an argument if the rationale is not compelling or capable of objective analysis. In such a case the Bid may be determined to be non-compliant.

4.4.4.8. The Purchaser reserves the right to request prime Contractors, or the Subcontractor to separately identify each of the direct/indirect costs, advise why each is required, and provide supporting documentation to substantiate each charge, such as: 1) catalogue price lists and any applicable discounts, 2) copies of the Subcontractor's orders from others for the same or similar items, including explanations for cost variations, 3) Subcontractor's internal cost estimate, or documentation of whatever means the Subcontractor used to arrive at the charge.

4.5. Evaluation Step 3 - Technical Evaluation

4.5.1. Upon determination of the lowest-priced Bid as described above, the Bid shall be evaluated to confirm compliance with the requirements stated in Book I, Section 3.6 and Book II, Part 4 - Statement of Work (SOW):

4.5.2. The Bidder’s Technical Proposal package will be evaluated for compliance to the following standards:

4.5.2.1. The Technical Proposal meets the requirements for preparation and submission set forth in the Bid Preparation;

4.5.2.2. The Technical Proposal addresses the different items as stated in Book I, Section 3.2.4;

4.5.2.3. The Technical Proposal has been constructed by differentiating the different domain of activities to perform as stated in Book I, Section 3.2.4.

4.5.3. The Bidder’s Project Management Proposal will be evaluated for the following elements:

4.5.3.1. The Bidder has provided an extract of Project Management Plan (PMP) which addresses the requirements that are detailed in paragraph 3.11.1 of the SOW.

4.5.3.2. The PMP extract will be evaluated in relation to that:

4.5.3.2.1. it does not exceed ten A4 pages/sides,

4.5.3.2.2. it details the Bidder's management structure and details management responsibilities and project tasks of any/all sub-contractors,

4.5.3.2.3. it identifies the top three risks for the implementation strategy,

4.5.3.2.4. it addresses the management of the coordination with NCI Agency Brussels.

4.5.3.2.5. it gives a breakdown of the project into various management stages.

4.5.3.2.6. it explains the risk register management.

4.5.3.2.7. it explains how the PMP will be maintained.

4.5.3.3. The Bidder has presented the Quality Assurance and Quality Control System he will use for the project which conform with the project's Quality Assurance Requirements.

4.5.3.4. The Bidder has provided evidence that the key personnel possess NATO Secret clearances which are valid for minimum one (1) year up to the duration of the prospective Contract

4.5.3.5. The Bidder has provided evidence that all installation personnel shall possess NATO Secret clearances within thirty (30) days which will be valid for at least one (1) year.

4.5.4. The Bidder's Technical Proposal addresses the site survey requirements:

4.5.4.1. The Bidder has detailed and explained the organisation, method and planning for the site survey.

4.5.4.2. The Bidder has proposed contingencies to mitigate risk of invalidated assumptions.

4.5.4.3. The Bidder has provided a template of the site survey workbook which gives a comprehensive outline.

4.5.5. The Bidder's Technical Proposal addresses the Design and Implementation activities:

4.5.5.1. The Bidder has provided a template of the Design documentation.

4.5.5.2. The Bidder has presented a solution which meets the requirements and scope of the project, in general.

4.5.5.2.1. Proposed technical solution provides the Voice Loop Capability for constant and instantonous voice communication between the CAOC and subordinated CRCs. The solutions proposing dialled / initiated conference calls instead will be considered non-compliant.

4.5.5.2.2. Proposed technical solution provides additional Telephone Capability for internal calls between the users within the system.

4.5.5.2.3. The proposed system is projected to be organized into two geographical domains controlled by the CAOCs or fallback SADC.

4.5.5.2.4. The Voice Loop Capability allows four Voice Loop channels to be operated constantly within each system domain.

4.5.5.2.5. Proposed technical solution provides a Voice Recording Capability at each CAOC/SADC site.

4.5.5.3. The Bidder has provided an extract of the Master Integrated Project Schedule (MIPS)

4.5.5.4. The MIPS extract contains a draft PWBS and a draft PDS which address the whole project scope and requirements.

4.5.5.5. The Bidder has identified in the PDS the stages to move from the current solution to the future solution which are logical and complete. The Bidder has identified the expected completion dates which are realistic and in line with the project's objectives.

4.5.5.6. The Bidder has provided a template of project progress report which contains all the relevant information fields.

4.5.6. The Bidder's Technical Proposal addresses the installation:

4.5.6.1. The Bidder has provided evidence of experience with installation and operation of VoIP Voice Loop communication systems

4.5.6.2. The Bidder has provided evidence that project's installation team has knowledge of the Equipment/Hardware & Software as well as of their installation and configuration.

4.5.6.3. The Bidder has provided the overall installation concept plan which addresses the preparation and performance of installation, and which identifies and mitigates the top 3 (three) implantation risks.

4.5.6.4. The Bidder has proposed a solution or method to limit operational service disruption and mitigate risks during the installation phase.

4.5.7. The Bidder's Technical Proposal addresses the Test and Acceptance activities:

4.5.7.1. The Bidder has provided an extract of the Test & Evaluation Plan (TEMP) in accordance with Annex E of the SOW. The Bidder shall explain the kind of tests to be performed for deliverable components and provide a system for conformance, performance and acceptance

purposes to meet the Voice Loop Project requirements of the Procurement Specification and SOW.

4.5.7.2. The Bidder has provided an example of the report produced after testing and for acceptance purposes.

4.5.7.3. The Bidder has explained the organisation and method to be used to perform tests and acceptance activities, as well as to solve discrepancies from previous acceptance testing, and handover to NCI Agency Brussels.

4.5.7.4. The Bidder has demonstrated knowledge and experience of security accreditation processes and the related security documentation that is required.

4.5.7.5. The Bidder has provided an extract of the Security Test and Evaluation Plan (ST&E Plan) as well as a template of the test report to be conducted in accordance to the ST&E Plan.

4.5.8. The Bidder's Technical Proposal addresses the Integrated Logistics Support Concept of the SOW.

4.5.8.1. The Bidder has provided an outline of the Integrated Logistics Support Plan (ILSP) which demonstrates his understanding of the scope of the projects ILS requirements.

4.5.8.2. The Bidder has provided an Initial Recommended Spare Parts List (RSPL) by site type.

4.5.8.3. The Bidder has proposed a warranty, the content of which is relevant to the project and customer's requirements.

4.5.8.4. The Bidder has proposed customer support which addresses the customer's needs as well as the organisation to manage incidents, problems and to manage release.

4.5.8.5. The Bidder has provided adequate evidence of the organisation and skills to address the ILS requirements, particularly: Customer Support, Maintenance Support, Configuration Management, Supply Support, Training, Technical Documentation.

4.5.8.6. The Bidder has provided an example of the as-built drawing and technical manuals which address the documentation requirements of the project.

4.5.8.7. The Bidder has provided and extract of the training manual / presentation material to perform training course.

4.5.8.8. The Bidder has provided and explained the method to capture the training needs during the site survey.

4.5.9. The Bidder's Technical Proposal addresses the Software and Hardware specifications.

4.5.9.1. The Bidder has provided a grid with the technical specifications of the requested and proposed equipment, as detailed in Section 3.3 of the SOW, which includes manufacturer names and part numbers.

4.5.9.2. The technical specifications of the equipment meet the minimum requirements as detailed in Section 3.3 of the SOW without overtaking them in excess.

4.5.9.3. The Bidder has provided explanations about choice of manufacturer and deviations in excess of the minimum requirements of the HW and SW to be utilized in the project.

Annex A Bidding and Cross Reference Sheets

Annex A-1. Instructions for the Preparation of the Bidding Sheets

1. INTRODUCTION

Bid pricing requirements as addressed in this Annex are mandatory. Failure to abide to the prescriptions of Bid submission referred in this section may lead to the Bid being declared non-compliant and not being taken into consideration for award.

No alteration of the Bidding sheets including but not limited to quantity indications, descriptions or titles are allowed with the sole exception of those explicitly indicated as allowed in this document. Additional price columns may be added if multiple currencies are Bid, including extra provisions for all totals.

2. GENERAL REQUIREMENTS

Bidders are required, in preparing their Price Quotation to utilise the Bidding Sheets following the instructions detailed in Section III – Bid Preparation Instructions, Paragraph 3.5– Price Quotation and hereunder.

The Bidding Sheets are contained in the electronic file “RFQ-13639-ACCS_Book I Bidding Sheets.xlsx” submitted as part of this RFQ.

The prices and quantities entered on the document shall reflect the total items required to meet the Contractual requirements.

The total price shall be indicated in the appropriate columns and in the currency quoted. The award of the Contract will be made in the currency or currencies of the Bid. The total evaluated price shall be the price of the basic contract (CLINs 1 to 5).

In preparing the Bidding Sheets, Bidders shall ensure that the prices of the Sub-items total the price of the major item of which they constitute a part. Pricing for lower level items shall add to the total for the Sub-CLINs, and the Sub-CLIN totals shall add to the CLIN total. The Purchaser in its favour may resolve ambiguous computation of prices.

All metrics (e.g., cost associated with labour) will be assumed to be standard or normalised to 7.6 hour/day, for a five day working week at NATO and National sites and Contractor facilities.

Bidders are advised that formulae are designed to ease evaluation of the Bidders proposal have been inserted in the electronic copies of the Bidding Sheets. Notwithstanding this the Bidder remains responsible for ensuring that their figures are correctly calculated and should not rely on the accuracy of the formulae electronic copies of the Bidding Sheets.

If the Bidder identifies an error in the spreadsheet, it should notify the Purchaser who will make a correction and notify all the Bidders of the update.

Prices shall not include any provision for taxes or duties for which the Purchaser is exempt.

Annex A-2. RFQ/Bid Cross-Reference Sheets

RFQ technical requirements Cross-Reference Sheet (cf. book2 - SOW)

CLIN	Description	RFQ reference	Bid reference

CLIN	Description	RFQ reference	Bid reference

Annex B Prescribed Administrative Forms and Certificates

Annex B-1. Certificate of Legal Name of Bidder

This Bid is prepared and submitted on behalf of the legal corporate entity specified below:

FULL NAME OF CORPORATION: _____

DIVISION (IF APPLICABLE): _____

SUB DIVISION (IF APPLICABLE): _____

OFFICIAL MAILING ADDRESS

_____

_____

_____

E-MAIL ADDRESS: _____

TELEFAX No: _____

POINT OF CONTACT REGARDING THIS BID:

NAME: _____
POSITION: _____
TELEPHONE: _____

ALTERNATIVE POINT OF CONTACT:

NAME: _____
POSITION: _____
TELEPHONE: _____

_____ _____
Date Signature of Authorised Representative

_____
Printed Name

_____
Title

_____
Company

Annex B-2. Acknowledgement of Receipt of RFQ Amendments

I confirm that the following amendments to RFQ-13639-ACCS have been received and the Bid, as submitted, reflects the content of such amendments.

Amendment no.	Date of Issued	Date of receipt	Initials

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

Annex B-3. Certificate of Independent Determination

It is hereby stated that:

a. We have read and understand all documentation issued as part of RFQ-13639-ACCS. Our Bid submitted in response to the referred solicitation is fully compliant with the provisions of the RFQ and the prospective Contract.

b. Our Bid has been arrived at independently, without consultation, communication or agreement, for the purpose of restricting competition, with any other Bidder or with any competitor;

b. The contents of our Bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to award, directly or indirectly to any other Bidder or to any competitor; and

c. No attempt has been made, or will be made by the Bidder to induce any other person or firm to submit, or not to submit, a Bid for the purpose of restricting competition.

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

Annex B-4. Certificate of Bid Validity

I, the undersigned, as an authorised representative of the firm submitting this Bid, do hereby certify that the pricing and all other aspects of our Bid will remain valid for a period of six (6) months from the Bid Closing Date of this Request for Quotation.

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

Annex B-5. Certificate of Exclusion of Taxes, Duties and Charges

I hereby certify that the prices offered in the price quotation of this Bid exclude all taxes, duties and customs charges from which the Purchaser has been exempted by international agreement.

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

Annex B-6. Comprehension and Acceptance of Contract Special and General Provisions

The Bidder hereby certifies that he has reviewed the Special Contract Provisions and the NCI Agency Contract General Provisions set forth in the Prospective Contract, Book II of this Request for Quotation. The Bidder hereby provides his confirmation that he fully comprehends the rights, obligations and responsibilities of the Contractor as set forth in the Articles and Clauses of the Prospective Contract. The Bidder additionally certifies that the offer submitted by the Bidder is without prejudice, qualification or exception to any of the Terms and Conditions and he will accept and abide by the stated Special and General Provisions if awarded the Contract as a result of this Request for Quotation.

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

ANNEX B-7. Disclosure of Requirements for NCI Agency Execution of Supplemental Agreements

I, the undersigned, as an authorised representative of _____, certify the following statement:

All supplemental agreements, defined as agreements, documents and/or permissions outside the body of the Contract but are expected to be required by my Government, and the governments of my Subcontractors, to be executed by the NCI Agency or its legal successor as a condition of my firm's performance of the Contract, have been identified, as part of the Bid.

These supplemental agreements are listed as follows:

(insert list of supplemental agreements or specify "none")

Examples of the terms and conditions of these agreements have been provided in our Offer. The anticipated restrictions to be imposed on NATO, if any, have been identified in our offer along with any potential conflicts with the terms, conditions and specifications of the Prospective Contract. These anticipated restrictions and potential conflicts are based on our knowledge of and prior experience with such agreements and their implementing regulations. We do not certify that the language or the terms of these agreements will be exactly as we have anticipated.

The processing time for these agreements has been calculated into our delivery and performance plans and contingency plans made in the case that there is delay in processing on the part of the issuing government(s).

We recognise that additional supplemental agreements, documents and permissions presented as a condition of Contract performance or MOU signature after our firm would be selected as the successful Bidder may be cause for the NCI Agency to determine the submitted Bid to be non-compliant with the requirements of the RFQ;

We accept that should the resultant supplemental agreements issued in final form by the government(s) result in an impossibility to perform the Contract in accordance with its schedule, terms or specifications, the Contract may be terminated by the Purchaser at no cost to either Party.

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

Annex B-8. List of Prospective Subcontractors

Name and Address of Sub-Bidder	DUNS Number[1]	Primary Location of Work	Items/Services to be Provided	Estimated Value of Sub-Contract

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

[1] Data Universal Numbering System (DUNS). Bidders are requested to provide this data in order to help NCI Agency to correctly identify Subcontractors. If a Subcontractor's DUNS is not known this field may be left blank.

Annex B-9. Bidder Background IPR

I, the undersigned, as an authorised representative of Bidder _____, warrant, represent, and undertake that:

a. The Contractor Background IPR specified in the table below will be used for the purpose of carrying out work pursuant to the prospective Contract.

ITEM	DESCRIPTION

b. The stated Bidder has and will continue to have, for the duration of the prospective Contract, all necessary rights in and to the Background IPR specified above.

c. The Subcontractor IPR stated above complies with the terms specified in the Contract General Provisions.

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

Annex B-10. List of Subcontractor IPR

I, the undersigned, as an authorised representative of Bidder _____, warrant, represent, and undertake that:

a. The Subcontractor IPR specified in the table below will be used for the purpose of carrying out work pursuant to the prospective Contract.

ITEM	DESCRIPTION

b. The stated Bidder has and will continue to have, for the duration of the prospective Contract, all necessary rights in and to the IPR specified above necessary to perform the Contractor's obligations under the Contract.

c. The Subcontractor IPR stated above complies with the terms of the Contract General Provisions.

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

Annex B-11. Certificate of Origin of Equipment, Services, and Intellectual Property

The Bidder hereby certifies that, if awarded the Contract pursuant to this solicitation, he will perform the Contract subject to the following conditions:

(a) none of the work, including project design, labour and services shall be performed other than by firms from and within participating NATO member countries;

(b) no material or items of equipment down to and including identifiable sub-assemblies shall be manufactured or assembled by a firm other than from and within a participating NATO member country. (A sub-assembly is defined as a portion of an assembly consisting of two or more parts that can be provisioned and replaced as an entity); and

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

Annex B-12. List of Proposed Key Personnel

Position	SOW Reference	Labour Category	Name	Designation Period

_____ _____

Date Signature of Authorised Representative

_____

Printed Name

_____

Title

_____

Company

Annex B-13. Index and Certificate of Compliance of Administrative Certificates

The Bidder hereby certifies that he complies with, and has duly signed, all Administrative Certificates required under this RFQ as indexed below. The Bidder further certifies that he has submitted the required Administrative Certificates without prejudice, qualification or exception, and that he has not made any changes or alterations to the original wording of any of the Administrative Certificates.

Index of Administrative Certificates:
Annex B-1 (Certificate of Legal Name of Bidder)
Annex B-2 (Acknowledgement of Receipt of RFQ Amendments)
Annex B-3 (Certificate of Independent Determination)
Annex B-4 (Certificate of Bid Validity)
Annex B-5 (Certificate of Exclusion of Taxes, Duties and Charges)
Annex B-6 (Comprehension and Acceptance of Contract Special and General Provisions)
Annex B-7 (Disclosure of Requirements for NCI Agency Execution of Supplemental Agreements) with the prospective text of such Agreements, as applicable.
Annex B-8 (List of Prospective Subcontractors)
Annex B-9 (Bidder Background IPR)
Annex B-10(List of Subcontractor IPR)
Annex B-11 (Certificate of Origin of Equipment, Services, and Intellectual Property)
Annex B-12 (List of Proposed Key Personnel)
Annex B-13 (Index and Certificate of Compliance of Administrative Certificates)

_____ _____
Date Signature of Authorised Representative

_____
Printed Name

_____
Title

_____
Company

Annex C Bid Guarantee - Standby Letter of Credit

Standby Letter of Credit Number:

Issue Date: _____

Beneficiary: NATO CI Agency,
Financial Management,
Bâtiment Z
Avenue du Bourget 140,
Belgium

Expiry Date: _____

1. We, (issuing bank) hereby establish in your favour our irrevocable standby letter of credit number {number} by order and for the account of (NAME AND ADDRESS OF BIDDER) in the original amount of € 200,000.00 (Two Hundred Thousand Euro). We are advised this Guarantee fulfils a requirement under Request for Quotation RFQ- 13639-ACCS dated _____.

2. Funds under this standby letter of credit are available to you upon first demand and without question or delay against presentation of a certificate from the NCI Agency Contracting Officer that:

a) (NAME OF BIDDER) has submitted a Bid and, after Bid Closing Date (including extensions thereto) and prior to the selection of the lowest price technically compliant Bid, has withdrawn his Bid, or stated that he does not consider his Bid valid or agree to be bound by his Bid, or

b) (NAME OF BIDDER) has submitted a Bid determined by the Agency to be the lowest priced, technically compliant Bid, but (NAME OF BIDDER) has declined to execute the Contract offered by the Agency, such Contract being consistent with the terms of the Request for Quotation, or

c) The NCI Agency has offered (NAME OF BIDDER) the Contract for execution but (NAME OF BIDDER) has been unable to demonstrate compliance with the security requirements of the Contract within a reasonable time, or

d) The NCI Agency has entered into the Contract with (NAME OF BIDDER) but (NAME OF BIDDER) has been unable or unwilling to provide the Performance Guarantee required under the terms of the Contract within the time frame required.

3. This Letter of Credit is effective the date hereof and shall expire at our office located at (Bank Address) on _____. All demands for payment must be made prior to the expiry date.

4. It is a condition of this letter of credit that the expiry date will be automatically extended without amendment for a period of sixty (60) calendar days from the current or any successive expiry date unless at least thirty (30) calendar days prior to the then current expiry date the NCI Agency Contracting Officer notifies us that the Letter of Credit is not required to be extended or is required to be extended for a shorter duration.

5. We may terminate this letter of credit at any time upon sixty (60) calendar days' notice furnished to both (NAME OF BIDDER) and the NCI Agency by registered mail.

6. In the event we (the issuing bank) notify you that we elect not to extend the expiry date in accordance with paragraph 4 above, or, at any time, to terminate the letter of credit, funds under this credit will be available to you without question or delay against presentation of a certificate signed by the NCI Agency Contracting Officer which states

"The NCI Agency has been notified by {issuing bank} of its election not to automatically extend the expiry date of letter of credit number {number} dated {date} pursuant to the automatic renewal clause (or to terminate the letter of credit). As of the date of this certificate, no suitable replacement letter of credit, or equivalent financial guarantee has been received by the NCI Agency from, or on behalf of (NAME OF BIDDER), and the NCI Agency, as beneficiary, hereby draws on the standby letter of credit number _____ in the amount of € (Amount up to the maximum available under the LOC), such funds to be transferred to the account of the Beneficiary number _____ (to be identified when certificate is presented)."

Such certificate shall be accompanied by the original of this letter of credit and a copy of the letter from the issuing bank that it elects not to automatically extend the standby letter of credit, or terminating the letter of credit.

7. The Beneficiary may not present the certificate described in paragraph 6 above until 20 (twenty) calendar days prior to a) the date of expiration of the letter of credit should {issuing bank} elect not to automatically extend the expiration date of the letter of credit, b) the date of termination of the letter of credit if {issuing bank} notifies the Beneficiary that the letter of credit is to be terminated in accordance with paragraph 6 above.

8. Multiple drawings are allowed.

9. Drafts drawn hereunder must be marked, "Drawn under {issuing bank} Letter of Credit No. {number}" and indicate the date hereof.

10. This letter of credit sets forth in full the terms of our undertaking, and this undertaking shall not in any way be modified, amended, or amplified by reference to any document, instrument, or agreement referred to herein (except the International Standby Practices (ISP 98) hereinafter defined) or in which this letter of credit is

referred to or to which this letter of credit relates, and any such reference shall not be deemed to incorporate herein by reference any document, instrument, or agreement.

11. We hereby engage with you that drafts drawn under and in compliance with the terms of this letter of credit will be duly honoured upon presentation of documents to us on or before the expiration date of this letter of credit.

12. This Letter of Credit is subject to The International Standby Practices-ISP98 (1998 Publication) International Chamber of Commerce Publication No.590.

Annex D Clarification Request Form

INSERT COMPANY NAME HERE
INSERT SUBMISSION DATE HERE

REQUEST FOR QUOTATION
RFQ-13639-ACCS

Enhancements to
NATO Integrated Air and Missile Defence System
Command and Control Communications

Voice Loop Communications

Annex D - CLARIFICATION REQUEST FORM

INSERT COMPANY NAME HERE
INSERT SUBMISSION DATE HERE

ADMINISTRATION or CONTRACTING				
Serial No.	**RFQ REF**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**STATUS**
A.1				
A.2				
A.3				
A.4				
A.5				

INSERT COMPANY NAME HERE
INSERT SUBMISSION DATE HERE

PRICE Serial No.	RFQ REF	BIDDER'S QUESTION	NCI AGENCY ANSWER	STATUS
P.1				
P.2				
P.3				
P.4				
P.5				

INSERT COMPANY NAME HERE
INSERT SUBMISSION DATE HERE

TECHNICAL				
Serial No.	**RFQ REF**	**BIDDER'S QUESTION**	**NCI AGENCY ANSWER**	**STATUS**
T.1				
T.2				
T.3				
T.4				
T.5				

NATO Communications and Information Agency

RFQ-13639-ACCS

PURCHASE ORDER

For the Implementation of the

Enhancements to
NATO Integrated Air and Missile Defence System
Command and Control Communications

Voice Loop Communications

SIGNATURE SHEET

NCI Agency, Book II

This Page Intentionally Left Blank.

NCI Agency PURCHASE ORDER CONTRACT	
1. Original Number __ of 3	**2. PO:**
3. Contract Number: RFQ-13639-ACCS	**4. Effective date: See block 15**
Contractor: **TBD**	Purchaser: NCIO represented by: The General Manager NCI Agency Boulevard Leopold III B-1110 Bruxelles Tel: +32(0)2 707 8163 Fax: +32(0)2 707 8517
5. CONTRACT SCOPE: **Voice Loop Communications** The contractor shall supply and deliver Voice Loop Communications equipment and services as detailed in the attached Schedule of Supplies and Services (Part I, Section 1-SSS) and the Statement of Work (Part III-SOW).	
6. TOTAL AMOUNT OF CONTRACT: Firm Fixed Price	
7. DELIVERY See Attached Part 1, Section 2 Contractor Activity Schedule and Payment Schedule. Purchaser is exempt from VAT and Customs Duties.	**8. SHIP TO/MARK FOR:** See Attached Part 3, Statement of Work.
9. CONTRACT AGREEMENT: The Contractor agrees to furnish all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this Contract shall be subject to and governed by the Contractor's **Basic Ordering Agreement No. XXXX** currently in effect with the Purchaser, and the Special Terms and Conditions attached to this Purchase Order**.**	
10. Signature of Contractor	**11. Signature of Purchaser**
12. Name and Title of Signer	**13. Name and Title of Signer**
14. Date signed by the Contractor	**15. Date signed by the Purchaser**

This Page Intentionally Left Blank.

NATO Communications and Information Agency

RFQ-13639-ACCS

Schedule of Supplies and Services

for the Implementation of the

Enhancements to
NATO Integrated Air and Missile Defence System
Command and Control Communications

Voice Loop Communications

Schedule of CLINs and Deliverables

NCI Agency, Book II, Part 1, Section 1

This Page Intentionally Left Blank.

REVISION SHEET

ECP No.	Revision	Date
INITIAL RELEASE	-	12/05/13

This Page Intentionally Left Blank.

TABLE OF CONTENTS

SECTION 1 – SCHEDULE OF CLINS AND DELIVERABLES
SECTION 2 – CONTRACTOR ACTIVITY SCHEDULE AND PAYMENT SCHEDULE

(FinalisationTo be Determined on Award of Contract)

This Page Intentionally Left Blank.

SECTION 1 – SCHEDULE OF SUPPLIES AND SERVCES

BASIC CONTRACT CLINs 1-4					
CLIN	**DESCRIPTION**	**SOW REFERENCE**	**QTY**	**UNIT PRICE**	**PRICE (Currency)**
1	**Non-recurring Engineering & Development, Total Firm Price CLIN 1**	**3.2**			
1.1	**System Engineering**				-
1.2	**Development (inc Procurement and Production of Voice Loop)**				-
1.3	**Development Test & Evaluation**				-
1.4	**Final System Test / Acceptance**				-
1.5	**Configuration and Data Management**				-
1.6	**Integrated Logistic Services**				-
1.7	**System Support**				-
1.8	**Project Management**				-
1.9	**Technical Interchange Meetings/Program Management Reviews**				
TOTAL PRICE CLIN 1					-

2	**SADC Site - HQ AIR COM RAMSTEIN**				
2.1	**Site System Engineering**	**3.2.1**	**1**		-
2.2	**Site Procurement and Production**	**3.3 - 3.4**	**1**		-
2.2.1	Voice Loop System – VoIP Equipment Costs		**1**		-
2.2.2	Voice Loop System – Other Digital		**1**		-
2.2.3	Voice Loop System – NATO PFP Comms Network		**1**		-
2.2.4	Voice Loop System – Commercial Comms Network		**1**		-
2.2.5	Costs - COTS SW Licences		**1**		-
2.2.6	Costs - COTS HW Licences		**1**		-
2.2.7	Costs - Commercial Service Provision Charges		**1**		-
2.3	**Site Test & Evaluation**		**1**		-
2.4	**Site Adaptations**		**1**		-
2.4.1	Site Adaptations		**1**		-
2.4.2	Site Installation and Checkout		**1**		-

2.5	**Site Configuration and Data Management**		**1**		-
2.5.1	Purchaser Furnished Information		**1**		-
2.5.2	Data Management		**1**		-
2.5.3	Configuration Management		**1**		-
2.6	**Site ILS**		**1**		-
2.7	**Site System Support**		**1**		-
2.8	**Site Project Management**		**1**		-
2.9	**Warranty - SW & HW**		**1**		-
TOTAL PRICE CLIN 2					**-**

3	**CAOC Sites UEDEM (Germany) & TORREJON (SPAIN)**				
3.1	**Site System Engineering**	**3.2.1**	**2**		-
3.2	**Site Procurement and Production**	**3.3 - 3.4**	**2**		-
3.2.1	Voice Loop System – VoIP Equipment Costs		**2**		-
3.2.2	Voice Loop System – Other Digital		**2**		-
3.2.3	Voice Loop System – NATO PFP Comms Network		**2**		-

3.2.4	Voice Loop System – Commercial Comms Network		**2**		-
3.2.5	Costs - COTS SW Licences		**2**		-
3.2.6	Costs - COTS HW Licences		**2**		-
3.2.7	Costs - Commercial Service Provision Charges		**2**		-
3.3	**Site Test & Evaluation**		**2**		-
3.4	**Site Adaptations**		**2**		-
3.4.1	Site Adaptations		**2**		-
3.4.2	Site Installation and Checkout		**2**		-
3.5	**Site Configuration and Data Management**		**2**		-
3.5.1	Purchaser Furnished Information		**2**		-
3.5.2	Data Management		**2**		-
3.5.3	Configuration Management		**2**		-
3.6	**Site ILS**		**2**		-
3.7	**Site System Support**		**2**		-
3.8	**Site Project Management**		**2**		-
3.9	**Warranty - SW & HW**		**2**		-

TOTAL PRICE CLIN 3					-

4	**CRC Type Site iaw SOW Annex D**				
4.1	**Site System Engineering**	**3.2.1**	**34**		-
4.2	**Site Procurement and Production**	**3.3 - 3.4**	**34**		-
4.2.1	Voice Loop System – VoIP Equipment Costs		**34**		-
4.2.2	Voice Loop System – Other Digital		**34**		-
4.2.3	Voice Loop System – NATO PFP Comms Network		**34**		-
4.2.4	Voice Loop System – Commercial Comms Network		**34**		-
4.2.5	Costs - COTS SW Licences		**34**		-
4.2.6	Costs - COTS HW Licences		**34**		-
4.2.7	Costs - Commercial Service Provision Charges		**34**		-
4.3	**Site Test & Evaluation**		**34**		-
4.4	**Site Adaptations**		**34**		-
4.4.1	Site Adaptations		**34**		-
4.4.2	Site Installation and Checkout		**34**		-

4.5	**Site Configuration and Data Management**		**34**		-
4.5.1	Purchaser Furnished Information		**34**		-
4.5.2	Data Management		**34**		-
4.5.3	Configuration Management		**34**		-
4.6	**Site ILS**		**34**		-
4.7	**Site System Support**		**34**		-
4.8	**Site Project Management**		**34**		-
4.9	**Warranty - SW & HW**		**34**		-
TOTAL PRICE CLIN 4					**-**

TOTAL BID PRICE (BASIC CONTRACT CLINs 1-4) - GRAND TOTAL				-	-

OPTIONAL CLINS

CLIN	DESCRIPTION	REFERENCE	QTY	UNIT PRICE	PRICE (Currency)
5	**OPTION FOR Additional CRC Type Sites iaw SOW Annex D**				
5.1	**Site System Engineering**	**3.2.1**	**4**		-

5.2	**Site Procurement and Production**	**3.3 - 3.4**	**4**		-
5.2.1	Voice Loop System – VoIP Equipment Costs		**4**		-
5.2.2	Voice Loop System – Other Digital		**4**		-
5.2.3	Voice Loop System – NATO PFP Comms Network		**4**		-
5.2.4	Voice Loop System – Commercial Comms Network		**4**		-
5.2.5	Costs - COTS SW Licences		**4**		-
5.2.6	Costs - COTS HW Licences		**4**		-
5.2.7	Costs - Commercial Service Provision Charges		**4**		-
5.3	**Site Test & Evaluation**		**4**		-
5.4	**Site Adaptations**		**4**		-
5.4.1	Site Adaptations		**4**		-
5.4.2	Site Installation and Checkout		**4**		-
5.5	**Site Configuration and Data Management**		**4**		-
5.5.1	Purchaser Furnished Information		**4**		-
5.5.2	Data Management		**4**		-
5.5.3	Configuration Management		**4**		-

5.6	**Site ILS**		**4**		-
5.7	**Site System Support**		**4**		-
5.8	**Site Project Management**		**4**		-
5.9	**Warranty - SW & HW**		**4**		-
TOTAL PRICE CLIN 5					**-**

TOTAL BID PRICE (OPTION CLINS) - GRAND TOTAL		-	-	-	-

TOTAL BID PRICE (BASIC CONTRACT CLINS + OPTION CLINS) - GRAND TOTAL		-	-	-	-

NATO Communications and Information Agency

RFQ-13639-ACCS

Schedule of Supplies and Services

for the Implementation of the

Enhancements to
NATO Integrated Air and Missile Defence System
Command and Control Communications

Voice Loop Communications

Contractor Activity Schedule and Payment Schedule

NCI Agency, Book II, Part 1, Section 2

This Page Intentionally Left Blank.

REVISION SHEET

ECP No.	Revision	Date
INITIAL RELEASE	-	12/05/13

This Page Intentionally Left Blank.

SECTION 2 – CONTRACTOR ACTIVITY SCHEDULE AND PAYMENT SCHEUDLE

M/S Number	MILESTONE DESCRIPTION	MILESTONE EXIT CRITERIA	ACTIVITY DATE	% PAYMENT OF CONTRACT FIRM FIXED PRICE TOTAL
1	Combined System Design Review (SDR) & System Requirements Review (SRR)	Purchaser confirmation that Design Review has been successfully completed (judged against SOW)	30-Sep-13	4
2	Factory Acceptance Testing (FAT) Test Descriptions Approved	Formal notification from the Purchaser that the CDRL is approved, approved with comments or is approvable upon resolution of comments to the satisfaction of the Purchaser.	31-Oct-13	7
3	Site Acceptance Testing (SAT) Test Descriptions Approved	Formal notification from the Purchaser that the CDRL is approved, approved with comments or is approvable upon resolution of comments to the satisfaction of the Purchaser.	30-Nov-13	4
4	Provisional Site Acceptance (PSA) SADC Site - HQ AIR COM RAMSTEIN	Purchaser Provisional Acceptance granted.	31-Dec-13	3
5	Provisional Site Acceptance (PSA) CAOC Site UEDEM (Germany)	Purchaser Provisional Acceptance granted.	31-Dec-13	3
6	Provisional Site Acceptance (PSA) CAOC Site TORREJON (Spain)	Purchaser Provisional Acceptance granted.	31-Dec-13	3
7	Provisional Site Acceptance (PSA) CRC Site 1	Purchaser Provisional Acceptance granted.	31-Mar-14	2
8	Provisional Site Acceptance (PSA) CRC Site 2	Purchaser Provisional Acceptance granted.	31-Mar-14	2
9	Provisional Site Acceptance (PSA) CRC Site 3	Purchaser Provisional Acceptance granted.	31-Mar-14	2

10	Provisional Site Acceptance (PSA) CRC Site 4	Purchaser Provisional Acceptance granted.	31-Mar-14	2
11	Provisional Site Acceptance (PSA) CRC Site 5	Purchaser Provisional Acceptance granted.	31-Mar-14	2
12	Provisional Site Acceptance (PSA) CRC Site 6	Purchaser Provisional Acceptance granted.	31-Mar-14	2
13	Provisional Site Acceptance (PSA) CRC Site 7	Purchaser Provisional Acceptance granted.	31-Mar-14	2
14	Provisional Site Acceptance (PSA) CRC Site 8	Purchaser Provisional Acceptance granted.	31-Mar-14	2
15	Provisional Site Acceptance (PSA) CRC Site 9	Purchaser Provisional Acceptance granted.	31-Mar-14	2
16	Provisional Site Acceptance (PSA) CRC Site 10	Purchaser Provisional Acceptance granted.	31-Mar-14	2
17	Provisional Site Acceptance (PSA) CRC Site 11	Purchaser Provisional Acceptance granted.	31-Mar-14	2
18	Provisional Site Acceptance (PSA) CRC Site 12	Purchaser Provisional Acceptance granted.	31-Mar-14	2
19	Provisional Site Acceptance (PSA) CRC Site 13	Purchaser Provisional Acceptance granted.	31-Mar-14	2
20	Provisional Site Acceptance (PSA) CRC Site 14	Purchaser Provisional Acceptance granted.	31-Mar-14	2
21	Provisional Site Acceptance (PSA) CRC Site 15	Purchaser Provisional Acceptance granted.	30-Jun-14	2
22	Provisional Site Acceptance (PSA) CRC Site 16	Purchaser Provisional Acceptance granted.	30-Jun-14	2
23	Provisional Site Acceptance (PSA) CRC Site 17	Purchaser Provisional Acceptance granted.	30-Jun-14	2
24	Provisional Site Acceptance (PSA) CRC Site 18	Purchaser Provisional Acceptance granted.	30-Jun-14	2

25	Provisional Site Acceptance (PSA) CRC Site 19	Purchaser Provisional Acceptance granted.	30-Jun-14	2
26	Provisional Site Acceptance (PSA) CRC Site 20	Purchaser Provisional Acceptance granted.	30-Jun-14	2
27	Provisional Site Acceptance (PSA) CRC Site 21	Purchaser Provisional Acceptance granted.	30-Jun-14	2
28	Provisional Site Acceptance (PSA) CRC Site 22	Purchaser Provisional Acceptance granted.	30-Jun-14	2
29	Provisional Site Acceptance (PSA) CRC Site 23	Purchaser Provisional Acceptance granted.	30-Jun-14	2
30	Provisional Site Acceptance (PSA) CRC Site 24	Purchaser Provisional Acceptance granted.	30-Jun-14	2
31	Provisional Site Acceptance (PSA) CRC Site 25	Purchaser Provisional Acceptance granted.	30-Jun-14	2
32	Provisional Site Acceptance (PSA) CRC Site 26	Purchaser Provisional Acceptance granted.	30-Jun-14	2
33	Provisional Site Acceptance (PSA) CRC Site 27	Purchaser Provisional Acceptance granted.	30-Jun-14	2
34	Provisional Site Acceptance (PSA) CRC Site 28	Purchaser Provisional Acceptance granted.	30-Jun-14	2
35	Provisional Site Acceptance (PSA) CRC Site 29	Purchaser Provisional Acceptance granted.	30-Jun-14	2
36	Provisional Site Acceptance (PSA) CRC Site 30	Purchaser Provisional Acceptance granted.	30-Jun-14	2
37	Provisional Site Acceptance (PSA) CRC Site 31	Purchaser Provisional Acceptance granted.	30-Jun-14	2
38	Provisional Site Acceptance (PSA) CRC Site 32	Purchaser Provisional Acceptance granted.	30-Jun-14	2
39	Provisional Site Acceptance (PSA) CRC Site 33	Purchaser Provisional Acceptance granted.	30-Jun-14	2

40	Last Provisional Site Acceptance (PSA) CRC Site 34 / Project Completion Meeting	Purchaser Provisional Acceptance granted. Project completion meeting held with Purchaser; agreement that all deliverables have been supplied in line with contractual requirements and confirmation provided that the Project is complete to Purchaser satisfaction (excluding FSA's / warranties).	30-Jun-14	2
41.a	Final System Acceptances (FSyA)	All PSA's complete, no major issues identified. Wide System Acceptance Test and Specialty Test completed successfully.	31-Jul-14	4
41.b	End of warranty period	All warranties complete with no issues outstanding or agreed action plan in place.	31-Jul-15	4
	Optional CLIN 5			
42	Provisional Site Acceptance (PSA) CRC Site 1	Purchaser Provisional Acceptance granted.	Exercise of Option + 4 Months	15
43	Provisional Site Acceptance (PSA) CRC Site 2	Purchaser Provisional Acceptance granted.	Exercise of Option + 4 Months	15
44	Provisional Site Acceptance (PSA) CRC Site 3	Purchaser Provisional Acceptance granted.	Exercise of Option + 4 Months	15
45	Provisional Site Acceptance (PSA) CRC Site 4	Purchaser Provisional Acceptance granted.	Exercise of Option + 4 Months	15
46.a	Final System Acceptances (FSyA)	All PSA's complete, no major issues identified. Wide System Acceptance Test and Specialty Test completed successfully.	Exercise of Option + 6 Months	30
46.b	End of warranty period	All warranties complete with no issues outstanding or agreed action plan in place.outstanding or agreed action plan in	FSyA + 12 months	10

		place.		

NATO Communication and Information Agency

RFQ-13639-ACCS

SPECIAL TERMS AND CONDITIONS

for the Implementation of the

Enhancements to

NATO Integrated Air and Missile Defence System

Command and Control Communications

Voice Loop Communications

NCI AGENCY, Book II, Part 2

Rev: Original, 30.05.2013

Purchase Order

This Page is Intentionally Left Blank.

REVISION SHEET

ECP No.	Revision	Date
Initial Release	-	30 May 2013

This Page Intentionally Left Blank.

2.0 SPECIAL TERMS AND CONDITIONS

2.1 DEFINITIONS
2.2 SCOPE
2.3 PARTICIPATING NATIONS
2.4 ORDER OF PRECEDENCE
2.5 APPLICABLE REGULATIONS
2.6 CONTRACT ADMINISTRATION
2.7 COMPREHENSION OF CONTRACT AND SPECIFICATIONS
2.8 PRICE BASIS
2.9 OPTIONS
2.10 DURATION OF CONTRACT
2.11CLEAR ACCOUNTABILITY IN CONTRACTOR RESPONSIBILITY
2.12 PERFORMANCE GUARANTEE
2.13 SUPPLEMENTAL AGREEMENTS, DOCUMENTS AND PERMISSIONS
2.14 CONTRACTOR'S PERSONNEL WORKING AT NATO FACILITIES
2.15 INTELLECTUAL PROPERTY RIGHTS, INDEMNITY AND ROYALTIES
2.16 LIQUIDATED DAMAGES
2.17 SECURITY
2.18 PURCHASER USE OF THIRD PARTIES
2.19 QUALITY ASSURANCE (QA) AND QUALITY CONTROL (QC)
2.20 INVOICES AND PAYMENT
2.21 AUDITING AND ACCOUNTING
2.22 WARRANTY OF DELIVERABLES
2.23 INTELLECTUAL PROPERTY RIGHTS, RIGHTS IN TECHNICAL DATA AND COMPUTER SOFTWARE
2.24 COTS DATA RIGHTS
2.25 TITLE AND RISK OF LOSS
2.26 CONFIDENTIALITY
2.27 RELEASE OF INFORMATION
2.28 INSPECTION AND ACCEPTANCE
2.29 APPROVAL OF CONTRACTOR ACTIVITIES
2.30 DELIVERY SCHEDULE
2.31 PROVISIONAL SITE ACCEPTANCE
2.32 FINAL SYSTEM ACCEPTANCE
2.33 TECHNICAL DIRECTION

2.1 DEFINITIONS

2.1.1 RESERVED.

2.2 SCOPE

2.2.1 The overall objective of the Contract is to procure the necessary Voice over IP (VoIP) 'Voice Loop' alerting capability to support communication between the NATO Combined Air Operations Centres (CAOC) Uedem (Germany) and Torrejon (Spain) and subordinate National Control and Reporting Centres (CRCs) across the NATO Area of Responsibility (AOR).

2.3 PARTICIPATING NATIONS

2.3.1 The Contractor may issue subcontracts to firms and purchase from qualified vendors in any NATO Nations participating in the project, namely, (in alphabetical order): ALBANIA, BELGIUM, BULGARIA, CANADA, CROATIA, CZECH REPUBLIC, DENMARK, ESTONIA, FRANCE, GERMANY, GREECE, HUNGARY, ICELAND, ITALY, LATVIA, LITHUANIA, LUXEMBOURG, THE NETHERLANDS, NORWAY, POLAND, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, TURKEY, THE UNITED KINGDOM and THE UNITED STATES.

2.3.2 None of the work, including project design, labour and services, shall be performed other than by firms from and within NATO member Nations. No material or items of equipment down to and including identifiable sub-assemblies shall be manufactured or assembled by a firm other than from and within a participating country.

2.3.3 The Intellectual Property Rights for all software and documentation used by the Contractor in the performance of the contract shall vest with firms from and within NATO member nations and no royalties or license fees for such software and documentation shall be paid by the Contractor to any source that does not reside within a NATO member nation.

2.4 ORDER OF PRECEDENCE

2.4.1 The Contract shall comprise in order of precedence, all the documents listed below and shall take precedence over all other documents referred to in the contract documents:

2.4.1.1 Part 1 – Schedule of Supplies and Services

2.4.1.2 Part 2 – Special Terms and Conditions

2.4.1.3 Part 3 – Your BOA XXXX with NATO

2.4.1.4 Part 4 – Statement of Work and Annexes

2.5 APPLICABLE REGULATIONS

2.5.1 The Contractor shall be responsible for obtaining permits or licenses to comply with national codes, laws and regulations or local rules and practices of the country of installations with respect of any works carried out at the designated installations sites stated under this Contract.

2.5.2 The Contractor shall take any necessary measure to protect the life and health of persons working or visiting the work area occupied by him. These measures include compliance with the country of installation's safety provisions.

2.6 CONTRACT ADMINISTRATION

2.6.1 All notices and communications between the Contractor and the Purchaser shall be written and conducted in English. Contract modifications shall only be valid when received in writing from the Contracting Authority, or his authorised representative as defined below. Formal letters and communications shall be personally delivered or sent by mail, registered mail, courier or other delivery service, to the Official Points of Contacts identified below.

The following is the Contracting Authority / authorised representative:

NCI AGENCY, ACQUISITION
Boulevard Leopold III
B-1110 Bruxelles, Belgium
Attn: Contracting Office, Mr. Jean-Luc Guellec
Fax: +32 (0)2 707 8777
Tel: +32 (0)2 707 8303
Email: jeanluc.guellec@ncia.nato.int

With a copy to the OPR:

NCI AGENCY, AIR C2
Boulevard Leopold III
B-1110 Bruxelles, Belgium
Attn: Robert Wojtas
Fax: +32 (0)2 707 8777
Tel: +32 (0)2 707 8554
Email: Robert.wojtas@ncia.nato.int

2.6.2 Informal notices and informal communications may be exchanged by all communication means, including telephone and e-mail and shall not be considered binding unless a formal letter or other formal communication described above is provided confirming the specific details of a previous informal communication. No oral statement of any person shall modify or otherwise affect the terms, conditions, or specifications stated in this Contract. All modifications to the Contract must be made in writing by the Contracting Authority.

2.7 COMPREHENSION OF CONTRACT AND SPECIFICATIONS

2.7.1 The Contractor warrants that he has read, understood and agreed to each and all terms, clauses, specifications and conditions specified in the contract and that his signature of the contract is an acceptance, without reservations, of the said contract terms within their normal and common meaning.

2.7.2 The specifications, as represented by the Technical Provisions, Part 4 of the Contract, set forth the performance requirements for the Contractor's proposed work as called for under this contract. Accordingly, notwithstanding any conflict or inconsistency which hereafter may be found between achievement of the aforesaid performance requirements and adherence to the Contractor's proposed design for the work, the Contractor hereby

warrants that the work to be delivered will meet or exceed the performance requirements of the said specifications.

2.7.3 Notwithstanding the "Changes" clause or any other clause of the contract, the Contractor hereby agrees that no changes to the aforesaid specifications which may be necessary to permit achievement of the performance requirements specified herein for the Contractor's proposed work shall entitle the Contractor to any increase in the fixed price as set forth in this contract or to any extension of the delivery times for the work beyond those set forth in the Schedule of Supplies and Services.

2.8 PRICE BASIS

2.8.1 This is a Firm Fixed Price contract. The Firm Fixed Price of this Contract is for the basic Contract (non-optional CLINs 1-4) and is payable to the Contractor as stated in Part 1, Schedule of Supplies and Services and Contractor Activity Schedule. The Purchaser assumes no liability for costs incurred by the Contractor in excess of the stated Firm Fixed Price in the performance of this Contract except as explicitly provided under certain provisions of this Contract.

2.8.2 This Contract also includes Firm Fixed Price optional work as indicated in the optional CLIN 5**.** The Purchaser assumes no liability for costs incurred by the Contractor in excess of the stated Firm Fixed Prices for this optional work

2.8.3 The Bidding sheets will be kept in the subject contract (CO-13639-ACCS) file as "Price Reference." This document will serve as the basis for any new price the Contractor will have to provide for any services or deliverables which might be modified or ordered by the Purchaser during the course of the contract and which has not been listed in the Schedule of Supplies and Services.

2.8.4 The Purchaser reserves the right to order any foreseeable or additional contract tasks or deliverables, listed or not, either occasionally or at a further stage in the life of the project, which he deems necessary for the successful completion of the project. The additional tasks and/or deliverables shall be priced in using the rates and prices provided by the Contractor as part of his bid.

2.9 OPTIONS

2.9.1 The option for CLIN 5 shall be valid and open for exercise from the Effective Date of the Contract (EDC) for the duration of the Contract.

2.9.2 The existence of this option in no way commits the Purchaser to exercise any or all of the option.

2.9.3 Under no circumstances shall the Contractor claim any compensation regarding optional work should the Purchaser not exercise an option.

2.10 DURATION OF CONTRACT

2.10.1 It is the Purchaser's intention that the present contract covers the totality of the requirements for the purchase of Voice over IP (VoIP) ‘Voice Loop’ alerting capability to support communication between the NATO CAOCs and subordinate national CRCs across the NATO AOR.

2.10.2 The work under the Contract shall commence on effective date of contract shown on the signature page and be completed by the last period mentioned in the Part 1 of this contract, Schedule of Supplies and Services and Contractor Activity Schedule and Payment Schedule. This Contract will expire upon completions and acceptance of all

work required under this Contract by which time all duties and obligations of both parties as specified herein shall have been satisfactorily discharged.

2.11 CLEAR ACCOUNTABILITY IN CONTRACTOR RESPONSIBILITY

2.11.1 Notwithstanding the right of the Purchaser to review the Contractor's efforts and progress, and particularly with reference to, specifications, and data items, which may be provided for elsewhere in this Contract, it is expressly understood that the Contractor is completely responsible for the compliance of Contract end items within the provisions of this Contract, and any reviews and approvals given by NCI Agency do not relieve the Contractor of this responsibility.

2.12 PERFORMANCE GUARANTEE

2.12.1 As a guarantee of performance under the Contract, the Contractor shall deposit with the Purchaser within thirty (30) calendar days from the Effective Date of Contract, or the Contract Signature Date by both parties, whichever is the later, a performance guarantee equal to the value of ten percent (10%) of the total contract price.

2.12.2 The guarantee, the negotiability of which shall not elapse before the expiration of the warranty period, or such other period as may be specified in the Contract, shall be made payable to the Purchaser and may be in the form of:

2.12.2.1 a Certified Cheque;

2.12.2.2 a Cashier's Cheque; or

2.12.2.3 a Standby Letter of Credit;

2.12.3 Certified and Cashier's Cheques issued to fulfil the requirements of the Performance Guarantee will be cashed by the Purchaser upon receipt and held in the Purchaser's account until the term of the Guarantee has expired.

2.12.4 "Standby Letter of Credit" as used herein, means a written commitment by a Belgian banking institution fully governed by Belgian legislation, to pay all or part of a stated amount of money, until the expiration date of the letter, upon presentation by the Purchaser of a written demand therefore. Neither the financial institution nor the Contractor can revoke or condition the letter of credit. Such Belgian banking institutions include Belgian branches of international banks that are incorporated in nations other than Belgium, insofar as these branches are fully governed by Belgian law. A Standby Letter of Credit may be issued directly by a bank located in another NATO member nation only to the extent that there is a separate confirmation/endorsement of the Standby Letter of Credit by a Belgian Bank and such confirmation/endorsement specifically contains the following declaration: "We, as the confirming (or endorsing) bank, hereby undertake to honour your sight draft(s) drawn on the issuing financial institution, for all or any part of this credit if presented with the Standby Letter of Credit and this Confirmation (or Endorsement) at the office specified in this Confirmation (or Endorsement) on or before the expiration date or any subsequently extended expiration date specified by an amendment to the Standby Letter of Credit and the Confirmation (or Endorsement)."

2.12.5 The following format shall be used by the issuing financial institution to create a Standby Letter of Credit:

[Issuing Financial Institution's Letterhead or Name and Address]

Issue Date _____

Standby Letter of Credit No. _____

Account party's name _____

Account party's address _____

For Contract No. CO-13639-ACCS

To: NCI AGENCY, AIR C2
Boulevard Léopold III
B-1110 Bruxelles, Belgique

We hereby establish this Standby Letter of Credit in your favour for one or more drawings up to (10% of Contract Value in Currency). This Letter of Credit is payable at [issuing financial institution's and, if any, confirming financial institution's] office at [financial institution's address and, if any, confirming financial institution's address] and expires with our close of business on _____, or any automatically extended expiration date.

We hereby undertake to honour your sight draft(s) drawn on the issuing or, if any, the confirming financial institution, for all or any part of this credit if presented with this Letter of Credit and confirmation, if any, at the office specified in paragraph 1 of this Letter of Credit on or before the expiration date or any automatically extended expiration date.

It is a condition of this Letter of Credit that it is deemed to be automatically extended without amendment for one year from the expiration date hereof, or any future expiration date, unless at least 60 days prior to any expiration date, we notify you by registered mail, or other receipted means of delivery, that we elect not to consider this Letter of Credit renewed for any such additional period. At the time we notify you, we also agree to notify the account party (and confirming financial institution, if any) by the same means of delivery.

This Letter of Credit is subject to the laws of The Kingdom of Belgium.

Sincerely,

_____

[Issuing financial institution]

2.12.6 The Contractor shall be notified in writing by registered mail from the Purchaser's Contracting Authority of the Purchaser's intent to draw from the Performance Guarantee in whole or in part ten (10) calendar days prior to such action being affected. The notification will cite the area(s) of Contractor non-performance in accordance with the terms of the Contract and provide the Contractor with an opportunity to show cause as to why the Purchaser's determination of Contractor non-performance is either erroneous, or the non-performance is considered excusable and beyond the reasonable control of the Contractor.

2.12.7 The Contractor shall request in writing relief from the performance guarantee upon expiration of the warranty period or such other period as may be specified in the Contract and such relief will be granted by the Purchaser.

2.12.8 The Contractor shall be responsible, as a result of duly authorised adjustments in the total contract price and/or period of performance by the Purchaser, for obtaining a commensurate extension and increase in the performance guarantee, the value of which shall not be less than ten percent (10%) of the total contract price (including all amendments), and for depositing such amended guarantee with the Purchaser, within thirty (30) calendar days from the effective date of aforesaid duly authorised adjustment.

2.12.9 The failure of the Contractor to deposit such Performance Guarantee with the Purchaser within the specified time frame, or any extension thereto granted by the Purchaser's Contracting Authority, is a material breach of the Contract terms and conditions subject to the provisions of the Contract General Provisions regarding “Termination For Default.”

2.12.10 The rights and remedies provided to the Purchaser under this clause are in addition to any other rights and remedies provided by law or under this contract. The notification described in above shall not be regarded as a notification of Termination for Default and this clause is in addition to and separate from related Clauses of the General Provisions.

2.13 SUPPLEMENTAL AGREEMENTS, DOCUMENTS AND PERMISSIONS

2.13.1 For the purpose of this provision, Supplemental Agreements mean any agreement imposed by national regulations with regard to export of defence products or disclosure of technical data. The Contractor and their Sub-contractors shall perform the required effort in accordance with the terms of the contract without the necessity of any Supplemental Agreements related to this contract.

2.13.2 The Contractor certifies by the signature of this Contract that it has submitted all relevant draft supplemental agreement(s), documents and permissions prior to contract award, the execution of which by the Purchaser is/are required by national law or regulation. If any supplemental agreements, documents and permissions are introduced after contract award, and it is determined that the Contractor failed to disclose the requirement for the execution of such agreement from the Purchaser prior to contract signature, the Purchaser may terminate this contract for "Default," in accordance with the General Provisions attached to BOA XXXX.

2.13.3 Supplemental agreement(s), documents and permissions, the execution of which by the Purchaser is/are required by national law or regulation and that have been identified by the Contractor prior to the signature of this contract, but have not yet been finalised and issued by the appropriate governmental authority, are subject to review by the Purchaser. If such supplemental agreement(s), documents and permissions are contrary to cardinal conditions of the signed contract between the Parties, and the Parties and the appropriate governmental authority cannot reach a mutual satisfactory resolution of the contradictions, the Purchaser reserves the right to terminate this contract and the Parties agree that in such case the Parties mutually release each other from claim for damages and costs of any kind, and any payments received by the Contractor from the Purchaser will be refunded to the Purchaser by the Contractor.

2.14 CONTRACTOR'S PERSONNEL WORKING AT NATO FACILITIES

2.14.1 The term "NATO Facilities" as used in this clause shall be deemed to include site, property, and utilities.

2.14.2 The Contractors shall have no claim against NCI AGENCY for any cost or delay occasioned by the closure of a facility due to holidays, or other reasons, where this is generally published or has previously been made known to the Contractor by NCI AGENCY or its authorised representatives.

2.14.3 The Contractor shall, except as otherwise provided for in the Contract, make good or, at the option of the Purchaser, pay compensation for all damage occurring to any NATO Facilities occasioned by the Contractor, or by his servants, agents or subcontractors, arising from his or their presence, on NATO Facilities in connection with the Contract; provided that this condition shall not apply to the extent that the Contractor is able to show that any such damage was not caused or contributed to, by his neglect, or default

or the neglect or default of his servants, agents or subcontractors, or by any circumstances within his or their control.

2.14.4 All property of the Contractor while at NATO Facilities shall be at the risk of the Contractor, and NCI AGENCY shall accept no liability for any loss or damage, except to the extent that any loss or damage is the result of a wilful act or gross negligence on the part of the Purchaser's employees or agents.

2.15 INTELLECTUAL PROPERTY RIGHTS, INDEMNITY AND ROYALTIES

2.15.1 The Contractor will indemnify and hold harmless NATO, its servants or agents, against any liability, loss or damage arising out of or in connection with the Deliverables and Services under this Contract, including the provisions set out above entitled "Intellectual Property Rights, Indemnity and Royalties."

2.15.2 The parties will indemnify each other against claims made against the other by their own personnel, and their subcontractors (including their personal representatives) in respect of personal injury or death of such personnel or loss or destruction of or damage to the property of such personnel.

2.15.3 NATO will give the Contractor immediate notice of the making of any claim or the bringing of any action to which the provisions of paragraph 2.15.1 may be relevant and will consult with the Contractor over the handling of any such claim and conduct of any such action and will not without prior consultation and without the consent of the Contractor settle or compromise any such claim or action.

2.15.4 In the event of an accident resulting in loss, damage, injury or death arising from negligence or wilful intent of an agent, officer or employee of NATO for which the risk has been assumed by the Contractor under paragraph 2.15.1, the cause of the accidents will be investigated jointly by the Parties and the extent to which NATO will be liable to recompense the Contractor will be determined together.

2.15.5 The Contractor shall assume all liability and indemnify the Purchaser, its officers, agents and employees against liability, including costs for the infringement of any patents or copyright in force in any countries arising out of the manufacture, services performed or delivery of supplies, or out of the use or disposal by or for the account of the Purchaser of such supplies. The Contractor shall be responsible for obtaining any patent or copyright licenses necessary for the performance of this Contract and for making all other arrangements required to indemnify the Purchaser from any liability for patent or copyright infringement in said countries.

2.15.6 The Contractor shall exclude from his prices any royalty pertaining to patents which in accordance with agreements reached between NATO countries may be utilised free of charge by member nations of NATO and by NATO organization.

2.15.7 The contractor shall report in writing to the Purchaser during the performance of this Contract;

2.15.7.1 The royalties excluded from his price for patent utilised under the agreements mentioned above;

2.15.7.2 The amount of royalties paid or to be paid by the Contractor directly to others in performance of this Contract.

2.16 LIQUIDATED DAMAGES

2.16.1 If the Contractor fails to meet the delivery schedule of the items required under this contract at the times specified in the Schedule of Supplies and Services (Contractor

Activity Schedule and Payment Schedule), or any agreed extension thereto, the actual damage to the Purchaser for the delay will be difficult or impossible to determine. Therefore, in lieu of actual damages, the Contractor shall pay to the Purchaser fixed and agreed liquidated damages of 0.1% (one tenth percent) of the foreseen payment for the associated Contractor Activity Schedule and Payment Schedule Milestone, for each day of delinquency in achieving the milestone. These liquidated damages will begin to accrue on the first day after the date on which delivery was to have been made.

2.16.2 In addition, the Purchaser may terminate this contract as provided in the "Termination for Default" clause of the General Provisions attached to the BOA. In the event of such a termination, the Contractor shall be liable for Liquidated Damages accruing to the date of termination, as well as the excess costs provided in the "Termination for Default" clause of the General Provisions.

2.16.3 The Contractor shall not be charged with liquidated damages when the delay arises out of causes beyond the control and without the fault or negligence of the Contractor. In such event, subject to the provisions of the “Disputes” Clause, the Purchaser shall ascertain the facts and extent of the delay and shall extend the time for performance of the contract when in his judgement the findings of fact justify an extension.

2.16.4 Liquidated damages shall be payable to the Purchaser from the first day of delinquency in delivery and shall accrue at the rate specified above to a maximum of Fifteen Percent (15%) of the applicable payment for the associated Contractor Activity Schedule and Payment Schedule Milestone. Cumulative assessed Liquidated Damages will not exceed a total of Ten Percent (10%) of the total value of the Contract.

2.16.5 The amount of Liquidated Damages due by the Contractor shall be recovered by the Purchaser in the following order of priority:

2.16.5.1 By deducting such damages from the amounts due to the contractor against the Contractor's invoice;

2.16.5.2 By proceeding against any surety;

2.16.5.3 By reclaiming such damages through appropriate legal remedies.

2.17 SECURITY

2.17.1 This Article supplements the Security Clause of the General Provisions attached to BOA XXXX.

2.17.2 The security classification of this contract is "NATO UNCLASSIFIED."

2.17.3 Contractor's personnel visiting or working at NCI AGENCY premises in connection with this Contract shall hold a NATO SECRET security clearance valid for the duration of the Contract. This requirement applies to all subcontracts issued by the Contractor for the effort under this prime Contract.

2.17.4 It is the responsibility of the Contractor to ensure that his personnel obtain the required security clearances and transmit this information to the sites to be visited in adequate time that the site may perform the appropriate administration. The Contractor shall also provide copies of all security clearances and visit requests for sites to the Purchaser Programme Manager.

2.17.5 The Contractor is advised that the personnel security process may be lengthy. The Purchaser bears no responsibility for the failure of the Contractor to secure the required clearances for its personnel within the necessary time.

2.17.6 The Contractor bears full responsibility and liability under the contract for delays arising from the failure of the Contractor to adhere to the security requirements.

2.17.7 If during the performance of the Contract, Contractor's personnel need to be escorted because of non-availability of the security clearance required by the Site, the Contractor shall pay the Purchaser a compensatory fee of 500 Euro per day of escort.

2.17.8 In the absence of valid security clearances for the Contractor's personnel during the performance of the Contract, the Purchaser reserves the right to terminate the Contract for "Default."

2.17.9 The Contractor shall adhere to the security requirements set forth in Part 4, Annex H "Project Security Instructions."

2.18 PURCHASER USE OF THIRD PARTIES

2.18.1 The Contractor shall permit such third parties full and free access to its premises, and all data (including software), deliverable and non-deliverable, generated and/or used under this Contract, as and when required for the purposes of monitoring this Contract and shall ensure the same right of access to the premises of its sub-contractors, by the inclusion of any such subcontracts of a provision substantially as set forth in this Clause.

2.18.2 The Contractor shall, at the earliest possible moment, inform the Purchaser, in writing, of any considered activities by such third parties at Contractor or sub-contractor premises, considered by the Contractor to be causing undue disruption of, or unnecessary interference with, Contractor activities.

2.18.3 The Purchaser shall have the right to use third parties, including commercial entities, to assist it in the management of this Contract and the evaluation of the Contractor's performance.

2.19 QUALITY ASSURANCE (QA) AND QUALITY CONTROL (QC)

2.19.1 A Quality Assurance (QA) programme for all work performed under this Contract shall be applied by the Contractor based on the Allied Quality Assurance Publications (AQAPs) specified in Section 3.12 of the SOW as well as the other requirements as defined in Section 3.12 of the SOW.

2.19.2 NCI AGENCY QAR (Quality Assurance Representative) or any other authority delegated to by the NQAR, is the designated Quality Assurance Authority responsible for defining the contract QA requirements and prescribing corrective and preventative action to be implemented by the Contractor to ensure fulfilment of contract requirements.

2.19.3 The NQAR will manage the delegation of Government Quality Assurance services in accordance of STANAG 4107, as required, based on contract risk assessment.

2.19.4 The NQAR may designate Purchaser QARs with the authority to monitor and examine the contractor's work and/or Quality Assurance Programme.

2.19.5 The Contractor shall be required to submit a Certificate of Conformity as required according to the SOW of this Contract for each deliverable product item, lot, shipment and associated documentation in the manner prescribed in Annex B to AQAP 2070 or in an equivalent format containing the same information.

2.19.6 The Contractor shall recognise and accept the application and use of AQAP 2070 NATO Mutual Government Quality Assurance Process and any other applicable NATO publication or ISO publication/standard incorporated by reference.

2.19.7 The Contractor shall, upon request, provide the GQAR and/or the Purchaser with a copy of any Sub-contracts or orders related to the contract.

2.20 INVOICES AND PAYMENT

2.20.1 Invoices shall be prepared in accordance with the Payment Schedule detailed as Part 1, Section 2, Contractor Activity Schedule and Payment Schedule and upon acceptance by the Purchaser of the related milestone/activity and/or CLIN.

2.20.2 Invoices in respect of any service and/or deliverable shall be prepared and submitted as specified hereafter and shall contain: contract number, contract amendment number (if any), order number (if any), the contract increment number, and the Contractor Activity Schedule and Payment Schedule Milestone number (s) if the invoices covers several Milestones as they are defined in the Contractor Activity Schedule and Payment Schedule. The invoice shall also contain the extended totals minus previously invoiced amounts (if any) exclusive of taxes and duties for which relief is available as stated in Clause "Taxes and Duties" of the General Provisions of BOA # XXXX.

2.20.3 Invoices shall be submitted in quadruplicate. Each copy of the invoice shall contain the following certificate:

> "I certify that the above invoice is true and correct, that the delivery of the above-described items has been duly effected and /or that the above-mentioned services have been rendered and the payment therefore has not been received."

2.20.4 The invoice amount is exclusive of VAT and exclusive of all Taxes and Duties as per clause "Taxes and Duties" of the General Provisions of BOA XXXX.

2.20.5 Invoices, complete with supporting documentation, shall be submitted to:

> NCI AGENCY, AIR C2
> Projects Financial Support Group
> Boulevard Leopold III – Batiment Z
> B-1110 Bruxelles
> Belgique
> Attn: Financial Officer

2.20.6 The certificate mentioned above shall be signed by a duly authorised company official on the designated original. Payment of the Services and Deliverables shall be made in the currency stated in Part I, Schedule of Supplies and Services.

2.20.7 Invoices may be presented after submission to and acceptance of the Milestone in writing by the Contracting Authority. The Contractor may choose to submit several invoices simultaneously after a Milestone has been reached and approved that cover previously approved milestones.

2.20.8 The Purchaser will make payments within 45 days of receipt of properly prepared invoices, for supplies delivered and accepted in writing by the Purchaser, tasks performed and approved, or services rendered and accepted fewer deductions, if any, as herein provided. All payments, for the invoices specified above, shall be made to the Contractor's financial institution as indicated on the invoice and shall be made in the currencies and amounts stated in Part 1, Schedule of Supplies and Services, of this Contract, for the relevant portion of the Contract. Payments shall be deemed made when the cheque or bank transfer order is made by the Purchaser.

2.20.9 No payment shall be made with respect to undelivered supplies, tasks or services not accepted or performed.

2.20.10 The Purchaser is released from paying any interest resulting from any reason whatsoever.

2.20.11 The invoicing and payment procedures for the amount payable to the Contractor shall be in accordance with the "Invoices and Payment" clause of the General Provisions.

2.21 AUDITING AND ACCOUNTING

2.21.1 Normal Contractor's national accounting and auditing procedures shall apply.

2.21.2 In the event of this Contract being terminated in accordance with the clause "Termination for Convenience of the Purchaser" of the General Provisions attached to BOA XXXX, the Contractor shall provide within ninety (90) days of the formal date of termination a detailed statement of all costs incurred since the initiation of the programme, together with the statement of all outstanding commitments for which the Contractor is legally liable.

2.22 WARRANTY OF DELIVERABLES

2.22.1 For the purpose of this Clause:

2.22.1.1 “Acceptance” shall mean the act of an authorised representative of the Purchaser by which the Purchaser assumes title and ownership of delivered Deliverables rendered as partial or complete performance of the Contract. “Acceptance” in this regard, unless specifically provided otherwise in the Contract Special Provisions, means Final Acceptance where the Contract provides for Provisional or Partial Acceptance;

2.22.1.2 “Correction” shall mean the elimination of a defect;

2.22.1.3 "Deliverables" shall not include software.

2.22.2 The Contractor shall not be responsible under this Clause for the Correction of Defects in Purchaser Furnished Property, except for Defects in Contractor performed installation, unless the Contractor performs, or is obligated to perform, any modifications or other work on Purchaser Furnished Property. In that event, the Contractor shall be responsible for Correction of Defects that result from the modifications or other Work.

2.22.3 Unless another period of time is indicated in the Contract Special Provisions, the duration of the warranty provided by the Contractor and its Subcontractors shall be twelve (12) months from the date of the Final System Acceptance (FSyA) as notified in writing by the Contracting Authority.

2.22.4 Any Deliverables or parts thereof corrected or furnished in replacement and any services re-performed shall also be subject to the conditions of this Clause and in accordance with the relevant subsections of the SOW. The warranty, with respect to these Deliverables, or parts thereof, or services, shall be equal in duration to that set forth in this Clause as stated above and shall run from the date of delivery of the corrected or replaced Deliverables or services.

2.22.5 If the Contractor becomes aware at any time before Acceptance by the Purchaser (whether before or after tender to the Purchaser) or at a later time, that a Defect exists in any Deliverable or service, the Contractor shall either promptly correct the Defect or promptly notify the Purchaser, in writing, of the Defect, using the same procedures prescribed in this Clause subsection 2.22.8.

2.22.6 The Purchaser will notify the Contractor, in writing, of the existence of a Failed Component and return to the Contractor the Failed Component within thirty (30) Days of the discovery of such failure. The transport of the Failed Component shall be at the expense of the Purchaser. The notification of the failure will include as much information as practicable about the circumstances and operating environment at the time of the failure. Upon receipt of such notification by the Purchaser (which may precede receipt of the Failed Component), the Contractor shall ship to the location of the Failed Component an identical component for installation within seven (7) days. The Contractor shall ship

such replacement component(s) Delivery Duty Paid. Such transportation and replenishment charges are included in the cost of line item of the Contract identified as the warranty.

2.22.7 In such rare cases where the Failed Component is either too large to be easily transported or the Failed Component cannot be readily identified and isolated within the larger entity, the Contractor shall be notified by the Purchaser of the failure immediately by telephone, fax or email. The Contractor shall provide technical support to the Purchaser personnel in identifying the Failed Component so as to afford the Purchaser the opportunity to return the Failed Component. In such a case where the Failed Component cannot be identified or is not cost effective or practical to ship to the Contractor's facility, the Contractor may elect to send field service personnel to the site of the failure and repair such equipment on location. In this event, such field service personnel shall be dispatched to the site of the failure within forty-eight (48) hours of initial notification. The expense of the technical support and field service shall be borne by the Contractor.

2.22.8 The Contractor shall conduct analyses of all Failed Components which are returned to him by the Purchaser or repaired in the field by Contractor field service personnel to determine the cause of the failure. The Contractor shall issue a report to the Purchaser within thirty (30) days of receipt of a returned item or field repair which contains the results of the analysis. The report shall contain the conclusion of the Contractor as to whether the cause of the failure was due to a Manufacturing Defect or a Design Defect and declare what course of remedial action the Contractor shall implement to prevent further failures of a similar nature. Repetitive failures of the same component may be grounds for a de facto determination by the Purchaser that a Design Defect exists.

2.22.9 If the Purchaser determines that a Design Defect exists in any of the Deliverables or services accepted by the Purchaser under this Contract, the Purchaser shall promptly notify the Contractor of the Defect, in writing, within ninety (90) days after discovery of the Defect. Upon timely notification of the existence of a Defect, or if the Contractor independently discovers a Design Defect or Manufacturing Defect in accepted Deliverables or services, the Contractor shall submit to the Purchaser, in writing within seven (7) days, a recommendation for corrective actions, together with supporting information in sufficient detail for the Purchaser to determine what corrective action, if any, shall be undertaken.

2.22.10 The Contractor shall also prepare and furnish to the Purchaser data and reports applicable to any Correction required under this Clause (including revision and updating of all other affected data called for under this Contract) at no increase in the Contract price.

2.22.11 In the event of timely notice of a decision not to correct or only to partially correct, the Contractor shall submit a technical and cost proposal within forty-five (45) days to amend the Contract to permit Acceptance of the affected Deliverables or services in accordance with the revised requirement, and an equitable reduction in the Contract price shall promptly be negotiated by the Parties and be reflected in a supplemental agreement to this Contract.

2.22.12 Within thirty (30) days after receipt of the Contractor's recommendations for corrective action and adequate supporting information in accordance with this Clause subsection 2.22.9, the Purchaser using sole discretion, shall give the Contractor written notice not to correct any Defect, or to correct or partially correct any Defect within a reasonable time.

2.22.13 The Contractor shall promptly comply with any timely written direction from the Purchaser to correct or partially correct a manufacturing or Design Defect, at no increase in the Contract price.

2.22.14 The Purchaser shall give the Contractor a written notice specifying any failure or refusal of the Contractor to:

2.22.14.1 Conduct analyses of Failed components and implement a course of remedial action as required by this Clause as stated above;

2.22.14.2 Provide replacement components, technical support or on-location field repair service in accordance with this Clause as stated above;

2.22.14.3 Prepare and furnish data and reports as required by this Clause as stated above.

2.22.15 The notice referred to in this Clause subsection 2.22.14 shall specify a period of time following receipt of the notice by the Contractor in which the Contractor must remedy the failure or refusal specified in the notice.

2.22.16 If the Contractor does not comply with the Purchaser's written notice in this Clause subsection 2.22.14, the Purchaser may by Contract or otherwise:

2.22.16.1 Obtain detailed recommendations for corrective action from its own resources or third parties and either:

2.22.16.1.1 Correct the Deliverables;

2.22.16.1.2 Replace the Deliverables, and if the Contractor fails to furnish timely disposition instructions, the Purchaser may dispose of the non-conforming Deliverables for the Purchaser's account in a reasonable manner, in which case the Purchaser is entitled to reimbursement from the Contractor, or from the proceeds, for the reasonable expenses of care and disposition, as well as for excess costs incurred or to be incurred;

2.22.16.1.3 Obtain applicable data and reports;

2.22.16.1.4 Charge the Contractor for the costs incurred by the Purchaser.

2.22.17 In no event shall the Purchaser be responsible for any extension or delays in the scheduled deliveries or periods of performance under this Contract as a result of the Contractor's obligations to correct Defects, nor shall there be any adjustment of the delivery schedule or period of performance as a result of the Correction of Defects unless provided by a supplemental agreement with adequate consideration.

2.22.18 The rights and remedies of the Purchaser provided in this Clause shall not be affected in any way by any terms or conditions of this Contract concerning the conclusiveness of inspection and Acceptance and are in addition to, and do not limit, any rights afforded to the Purchaser by any other Clause of this Contract or applicable law.

2.23 INTELLECTUAL PROPERTY RIGHTS, RIGHTS IN TECHNICAL DATA AND COMPUTER SOFTWARE

2.23.1 All reports, presentations, etc. produced for the Purchaser under Contract are to include the following data legend on the title page:

> “This material is the property of NCI AGENCY and may not be reproduced without written permission."

2.23.2 Subject to the rights of third parties and with due regard to national security regulations, all rights in the results of work undertaken by or on behalf of the Purchaser for the purposes of this contract, including any technical data specifications, report, drawings, computer software data, computer programmes, computer databases, computer software, documentation including software documentation, design data, specifications,

instructions, test procedures, training material produced or acquired in the course of such work and, in particular, all rights, including copyright therein, shall vest in and be the sole and exclusive property of the Purchaser.

2.23.3 The price for the rights as at 2.23.2 above is included in the Contract Price detailed at Part 1, Schedule of Supplies and Services.

2.24 COTS DATA RIGHTS

2.24.1 The Purchaser and NATO shall have the right, within the price of this Contract and at no additional cost, to use or have used COTS Data delivered under this Contract. In exercising this right, all COTS Data may be:

2.24.1.1 Used or copied for use in or with the computer or computers for which it was acquired, including use at any site to which such computer or computers may be transferred;

2.24.1.2 Used or copied for use in a backup computer if any computer for which it was acquired is inoperative;

2.24.1.3 Reproduced for safekeeping (archives) or backup purposes;

2.24.1.4 Combined with other data, provided that the combined portions are made subject to the same COTS Data Rights;

2.24.1.5 Disclosed to and reproduced for use by support service Contractors provided the Purchaser makes such disclosure or reproduction subject to these COTS Data Rights;

2.24.1.6 Used or copied for use in a replacement computer.

2.24.2 The Contractor shall ensure that COTS Data beyond the quantities delivered under this Contract are available to the Purchaser and NATO outside of this Contract on fair and reasonable terms and with COTS Data Rights which are at least equivalent to those described in 2.24.1 above.

2.24.3 The Contractor shall be responsible for ensuring that COTS Data is clearly marked with a legend identifying it as such and indicating the limitations of disclosure and use. The Purchaser and NATO shall be entitled to use in accordance with the restricted rights applicable to Data as set forth in 2.22 any COTS Data which is not so marked.

2.24.4 The Purchaser acknowledges that some actions as described in 2.24.1 regarded as COTS software may be limited due to restrictions contained in the standard commercial licences of the COTS software suppliers. As a result, the Purchaser further acknowledges that the Contractor may not be able to provide rights in data for some COTS software beyond those rights provided by the COTS software supplier.

2.25 TITLE AND RISK OF LOSS

2.25.1 All deliverables shall transfer to and vest with the Purchaser, upon Acceptance of each CLIN, except where such software is otherwise under license to the Purchaser. In such cases, the software license shall be transferred to the Purchaser.

2.26 CONFIDENTIALITY

2.26.1 For the purposes of this clause, "Confidential Information" shall include all information pertaining to any part of this contract or any program related to this contract that has or

could have commercial value or other utility in the business in which the Purchaser, the Contractor, or other current or prospective Purchaser's contractors are engaged.

2.26.2 Without prejudice to other obligations imposed by NATO Security regulations, the Contractor shall hold and maintain the Confidential Information in strictest confidence for the sole and exclusive benefit of the Purchaser. The Contractor shall carefully restrict access to Confidential Information to employees, subcontractors, and third parties as is reasonably required and shall require those persons to sign non-disclosure restrictions at least as protective as those in this contract. The Contractor shall not, without prior written approval of the Purchaser, use for the Contractor's own benefit, publish, copy, or otherwise disclose to others, or permit the use by others for their benefit or to the detriment of the Purchaser, any Confidential Information. The Contractor shall return to the Purchaser any and all records, notes, and other written, printed, or tangible materials in its possession pertaining to Confidential Information immediately if the Purchaser requests it in writing.

2.26.3 The Contractor agrees that compliance with the obligations imposed by the terms of this clause is of the essence and that failure to abide to these terms shall constitute sufficient grounds for termination of the contract for default.

2.27 RELEASE OF INFORMATION

2.27.1 Except as otherwise specified elsewhere in the Contract and without prejudice to the "Security" General Provision of BOA XXXX, the Contractor and/or his employees shall not, without prior authorisation from the Purchaser, release to third parties any information pertaining to this Contract, its subject matter, performance there under or any other aspect thereof.

2.27.2 The Contractor shall seek the prior written approval of the Purchaser before publishing any press release or disclosing any other information, orally or in writing, in relation to the Contract. The approval of the Purchaser shall be required for both the opportunity and the content of the information.

2.28 INSPECTION AND ACCEPTANCE

2.28.1 Inspection and Acceptance of the items delivered under this Contract will be made according to Clause "Inspection, Acceptance and Rejection" of General Provisions attached to BOA XXXX and to the Statement of Work. Acceptance will be made in writing by the Purchaser.

2.29 APPROVAL OF CONTRACTOR ACTIVITIES

2.29.1 The Purchaser may observe Contractor activities identified in Part 1, Schedule of Supplies and Services of this Contract, following the process described in Part 4, Section 1 for individual Contractor activities. Upon successful completion of an activity by the Contractor, the Purchaser shall provide its approval in writing as promptly as practicable. Failure of the Purchaser to provide a written approval following the Contractor’s successful conduct of an activity shall not be considered by the Contractor as an act of approval on the part of the Purchaser.

2.29.2 The Purchaser has the right to withhold approval of a Contractor activity should the conduct of such activity not be considered successfully completed. Under such circumstances, the Contractor shall be required to reconduct the activity, in whole or in part, at the request of the Purchaser until such activity is considered by the Purchaser as

successfully completed. The Contractor shall not claim an adjustment in the price of this Contract due to this requirement to reconduct unsuccessful activities.

2.29.3 Approval by the Purchaser of a Contractor activity shall indicate that the Contractor's plans, design or other aspects of the Contractor's work demonstrated during an activity appear sound and can be used for further work. Such approval shall not discharge the Contractor from any of his responsibilities under this Contract, including future necessary rework, redesign, modification or adjustment of Contractor work based upon a Contractor design or plan from an earlier date regardless of its approval by the Purchaser.

2.30 DELIVERY SCHEDULE

2.30.1 Deliveries of the SADC Site (Ramstein), CAOC Sites (Uedem, Torrejon), and CRC sites are to be in accordance with that detailed in the Contractor Activity Schedule at Part 1, Section 2 and as detailed in the Part 4, Section 1 Annex D.

2.30.2 The Purchaser reserves the right to, at any time, change the schedule of the site installation as detailed in Part 4, Section 1 Annex D "Site List" with no impact to the Purchaser. The Purchaser shall give the Contractor two weeks advance notice if a change in schedule of the site installation is required.

2.30.3 The Purchaser reserves the right to, at any time, change the schedule of the site installation for the optional French Sites (CLIN 5) as detailed in Part 4, Section 1 Annex D "Site List" with no impact to the Purchaser. The Purchaser shall give the Contractor two weeks advance notice if a change in schedule of the site installation is required.

2.31 PROVISIONAL SITE ACCEPTANCE

2.31.1 Provisional Site Acceptance (PSA) is the act by which the Purchaser acknowledges in writing that prima facie the Contractor has met all Contract requirements. It ensures all Contractor installed hardware, developed software and firmware have full operational capability as globally defined in the Procurement Specifications contained in Part 4 Section 2.

2.31.2 Each PSA takes place when the following requirements for that site have been met by the Contractor:

2.31.2.1 Satisfactory completion of all site adaptation works for the site, as identified in the relevant CDRLs;

2.31.2.2 Satisfactory completion of all Site based tests and inspections and testing;

2.31.2.3 Resolution of all site deficiencies noted during inspections and integration testing, if any;

2.31.2.4 Successful completion of any retrofit activity and/or regression testing resulting from integration testing;

2.31.2.5 The site has full operational capability, in that all Site, System and Specialist Testing has been completed to the satisfaction in accordance with the VCRI;

2.31.2.6 The provision of all support equipment, spare parts and consumables has been completed;

2.31.2.7 Successful completion of all Contract requirements (except warranty and exercised options);

2.32.2.8 The training and technical documentation related to the ground site has been provided.

2.32 FINAL SYSTEM ACCEPTANCE

2.32.1 Final System Acceptance (FSyA) is the act by which the Purchaser acknowledges that the Contractor has:

2.33.1.1 Closed all observations and deficiencies noted during the PSAs;

2.33.1.2 Completed successfully all System Wide Acceptance Testing and Specialty Testing;

2.32.2 Notwithstanding FSyA, the Contractor shall not be deemed to have completed the Contract unless all provisions for completion of the Contract have been satisfied. This stage of acceptance not only acts as a checkpoint of Contractor performance, but is also the act by which the Title and Risk of loss of the Voice Loop project capability delivered under the Contract shall pass to the Purchaser, and signifies the start of the warranty under the Contract.

2.32.3 Upon closure of all outstanding observations and other deficiencies and all relevant warranty claims and the completion of the Contract warranty periods, the Purchaser will call an “end of warranty” meeting to review the status of the implementation and to discuss and confirm clearance of previously identified deficiencies, observations and warranty claims.

2.33 TECHNICAL DIRECTION

2.33.1 The Contract will be administered by NCI Agency in accordance with clause 2.6 “Contract Administration” of these Special Terms and Conditions.

2.33.2 The Technical Management of the Contract is the responsibility of the Office of Primary Responsibility (OPR) as specified above in clause 2.6. Neither the OPR nor the Purchaser's Technical Representative on a site has the authority neither to make changes to the terms, conditions or specifications of the Contract nor to increase the overall cost, duration or level of effort of the Contract.

2.33.3 The Technical Representative does have the authority to interpret Part 4, Section 1 and provide direction to the Contractor personnel in performance of their duties within the terms of the Contract. In addition, the Technical Representative will monitor Contractor performance and recommend whether the services provided by the Contractor’s personnel are satisfactory and acceptable for payment.

2.33.4 If the Contractor believes that any technical direction received from these officials of the Purchaser constitutes a change to the terms, conditions and/or specifications of the Contract, he shall immediately inform in writing, the NCI AGENCY Contracting Officer with the specifics of such direction. The NCI AGENCY Contracting Officer will either confirm or revoke any such direction. If such direction is confirmed as a change, this change will be formalised by written amendment to the Contract. Failure of the Contractor to notify the NCI AGENCY Contracting Officer of direction constituting change of the contract will result in a waiver of any claims pursuant to such change.

NATO Communications and Information Agency

RFQ-13639

Statement of Work

For the Implementation of the

Enhancements to

NATO Integrated Air and Missile Defence System

Command and Control Communications

Part 4 Voice Loop Communications

NCI Agency, UR6A, Book 2, Part 4, Section 1

REVISION SHEET

ECP No.	Revision	Date
Initial Release	-	30 May 2013

TABLE OF CONTENTS

1. **INTRODUCTION** 6
1.1 Overview 6
1.2 Contractor Compliance with SOW 7
1.3 Standards for Interpretation of the SOW 8
1.4 Overall Requirements 8
2. **APPLICABLE DOCUMENTS AND REFERENCES** 9
3. **DETAILED DEFINITION OF WORK – SCOPE** 9
3.1 Following and Updating Plans 9
3.2 System Engineering 9
3.2.1 System Engineering Management 9
3.2.2 Contractor System Engineering Tasks 11
3.2.3 Technical Reviews 12
3.2.3.1 General 12
3.2.3.2 System Design Review/System Requirements Review 14
3.2.3.3 Test Readiness Reviews 14
3.2.4 Interface Engineering and Integration 15
3.2.5 Voice Data 15
3.2.5.1 Quality of Service 15
3.2.6 Applicable Documents – System Engineering 16
3.2.7 Applicable Documents – Safety Engineering 16
3.2.8 Security Engineering 16
3.2.8.1 Security Architectural Design 17
3.2.8.2 Tempest Integrity 17
3.2.8.3 Security Assurance Levels 18
3.2.8.4 Applicable Documents – Security Engineering 18
3.2.9 Electromagnetic Interference Compatibility 19
3.2.9.1 Applicable Documents EMIC 20
3.3 **DEVELOPMENT** 20
3.3.1 Hardware Design and Development 20
3.3.1.1 General 20
3.3.1.2 Reused Products 20
3.3.1.3 COTS Products and COTS Product Upgrades 21
3.3.1.4 Hardware Configuration and Architectural Design 21
3.3.1.5 HWCI Detailed Design 21
3.3.1.6 Hardware Implementation 22
3.3.1.7 Hardware Selection and Procurement 22
3.3.1.7.1 Purchaser Directed Buy 22
3.3.1.7.2 Purchaser Furnished Property 22
3.3.2 **SOFTWARE DEVELOPMENT** 23
3.3.2.1 General 23
3.4 **MANUFACTURING MANAGEMENT** 26
3.4.1 Producibility 26
3.5 **TEST AND EVALUATION** 26
3.6 **SITE IMPLEMENTATION** 27
3.6.1 Site Installation Locations 27
3.6.2 Site Civil Engineering 27
3.6.3 Site Engineering Activities 27
3.6.3.1 Site Surveys 27
3.6.3.2 Site Adaptations 28
3.6.3.3 Site Verification Inspections 28

3.6.3.4 Installation Inspections 28
3.6.3.5 Delivery, Installation and Check-Out 29
3.6.3.6 Site TEMPEST Integrity 29
3.6.3.7 Site As Built Drawings 29
3.6.3.8 Site Clean Up 30
3.6.3.9 Site Compliance Inspection 30
3.6.3.10 Contractor Access to Facilities 30
3.7 **CONFIGURATION MANAGEMENT** 31
3.7.1 Configuration management System 31
3.8 **LOGISTICS SUPPORT** 31
3.8.1 Integrated Logistic Support Program 31
3.8.2 Maintenance Planning 31
3.8.3 Hardware Maintenance Concept 32
3.8.4 Software Maintenance Concept 32
3.8.5 Logistics Support Analysis 32
3.8.5.1 Logistics Support Analysis Program 33
3.8.5.2 Functional Requirements Identification 33
3.8.5.3 Task Analysis 33
3.8.5.4 Level of Repair Analysis 34
3.8.5.5 Logistic Support Analysis Control Numbers 34
3.8.5.6 Source Maintenance and Recoverability Codes 34
3.8.5.7 Applicable Documents – Integrated Logistics Support 35
3.9 **RELIABILITY, AVAILABILITY AND MAINTENANCE PROGRAM** 35
3.9.1 Administrative Logistics Delay Time 36
3.9.2 Availability 36
3.9.3 Reliability 36
3.9.3.1 Reliability Modelling, Allocation and Prediction Reports 36
3.9.3.2 Failure Reporting Analysis and Corrective Action System 37
3.9.3.3 Failure Review Board 38
3.9.3.4 Failure Modes, Effects and Criticality Analysis 38
3.9.3.5 Reliability Critical Items 38
3.9.3.6 Effects of Functional Testing, Storage, Handling, Packaging, Transportation and Maintenance 39
3.9.3.7 Applicable Documents- Availability and Reliability 39
3.9.4 Maintainability 39
3.9.4.1 Maintainability Modelling, Allocation and Prediction 40
3.9.4.2 Maintainability Analysis 40
3.9.4.3 Applicable Documents – Maintainability 40
3.10 **SYSTEM SUPPORT** 41
3.10.1 Supply Support 41
3.10.1.1 Supply Concept 41
3.10.1.2 Provisioning Conferences 42
3.10.1.3 Equipment Codification 42
3.10.1.4 Applicable Documents – Supply Support 44
3.10.2 Support Equipment 43
3.10.3 Technical Documentation 44
3.10.3.1 Technical manuals 45
3.10.3.2 Applicable Documentation – Technical Documentation 45
3.10.3.3 ILS Data Validation and Verification 45
3.10.3.4 Applicable Documents – Logistics Support Analysis 46
3.10.4 Training and Training Support 46
3.10.4.1 General 46

3.10.4.2 Plans 47
3.10.4.3 Training Courses 47
3.10.4.3.1 Initial Training for Site Personnel 47
3.10.4.4 Training Documentation and Equipment 48
3.10.4.5 Course Administration 49
3.10.4.6 Language 49
3.10.4.7 Applicable Documents – Training 49
3.10.5 Packaging, handling, Storage and Transportation 49
3.10.5.1 Facilities 49
3.10.5.2 Packaging, Handling, Storage and Transportation Requirements 49
3.10.5.3 Packaging, Handling, Storage and Transportation Support Prior to Provisional Site Acceptance 50
3.10.5.4 Applicable Documents – Packaging, handling, Storage and Transportation 50
3.11 **PROJECT MANAGEMENT** 51
3.11.1 Project Management Plan 51
3.11.2 Project Management Process 51
3.11.3 Project Management Organization 51
3.11.4 Risk Management 52
3.11.5 Master Integrated Project Schedule 53
3.11.6 Contract Work breakdown Structure 54
3.11.7 Project Contractor's Progress, Status and man-Month Effort Report 54
3.11.8 Project management Reviews 55
3.11.9 Technical Interchange Meetings 57
3.12 **QUALITY ASSURANCE** 57
3.12.1 Quality Assurance Program 57
3.12.2 Organization and Personnel 58
3.12.3 Quality Assurance Plan 59
3.12.4 Corrective Action System 59
3.12.5 Testing 59
3.12.6 Sub-Contractors 59
3.12.7 Support Tools 60
3.13 **CONTRACT DATA MANAGEMENT** 60
3.13.1 Contract Data management Authority 60
3.13.2 Contract Data Requirements List Control 60
3.13.3 Contract Data Accession List 60
3.13.4 Contract Data Management Status Accounting 60
3.14 **ACCEPTANCE AND PROJECT COMPLETION** 61
3.14.1 Site Acceptance 61
3.13.1.1 Provisional Site Acceptance 61
3.13.1.2 Final System Acceptance 61
3.14.2 Project Completion 61

1. INTRODUCTION

(1) This Statement of Work (SOW) identifies and defines the deliveries, tasks, supplies/services and requirements to be performed by the Contractor for the "Urgent Requirement 6A Voice Loop (VL) Project (here after called the "Project") and to be implemented in line with the Purchaser implementation schedule, in order to deliver an Initial Operational Capability (IOC) by July 2014.

SOW0001/- Overall Requirement

The Contractor shall design, develop, produce, test and deliver the Project in accordance with the provisions of both, this SOW and Procurements Specification.

1.1 OVERVIEW

(1) NATO has an Urgent Requirement, for a project which provides a Voice Loop alerting capability between the NATO Combined Air Operations Centres (CAOC) Uedem (Germany) and Torrejon (Spain) and subordinate national Control and Reporting Centres (CRCs) across the NATO Area of Operations (AOR). This requirement has resulted from increased Areas of Responsibility for each CAOC, as a consequence of the new NATO Command Structure (NCS).

(2) The standardization of the required Air Policing Air C2 ‘execution procedures’, under a single Air Command (AC) HQ at Ramstein (Germany) and across the Northern and Southern Air Policing Areas (APAs), requires an Operational Voice Communications capability to provide robust Command and Control (C2) of NATO Integrated Air and Missile Defence System (NATINAMDS) elements at the CAOCs fall-back SADC facility at AC HQ Ramstein and subordinate CRCs.

SOW002/- Specific Requirements, the Contractor shall:

SOW003/- The Contractor shall provide all necessary resources including services, personnel, utilities, materials, components, supplies and documentation needed to accomplish the tasks described in this SOW.

SOW004/- The Contractor shall ensure that the proposed design is fully compliant with the Project Procurement Specification (PS) requirements.

SOW005/- The Contractor shall deliver a VL system to meet the PS and other associated Project tasks/items, supplied to the Purchaser as described in this SOW.

(3) The Contractor’s tasks during the Contract execution shall include:

SOW006/- Design, Development and Procurement.

SOW007/- Site Adaptations.

SOW008/- Installation, Check-out and integration and Test and Evaluation at the specified sites (Part 4, Section 1, Annex D).

SOW009/- Related Integrated Logistics Support (ILS) and Reliability, Maintainability and Availability Engineering (RAMT).

SOW010/- Related Systems Engineering and Project Management.

SOW011/- Production and delivery of Data packages and Training.

SOW012/- Supply Support including initial spares and Support Equipment.

SOW013/- Implement and execute the Warranty procedures required under the contract.

SOW014/- CDRL Deliverables

The Contractor shall deliver Contract Data Requirements List (CDRL) data items to the Purchaser as described in the NCI Agency, Book II, Part 4, Section 1, Annex A

1.2 Contractor Compliance with SOW

SOW015/- Contractor Compliance with the SOW

a. The Contractor shall comply with every requirement of the SOW and all its Annexes.

b. SOW requirements are specified by unique “shall” statements.

c. Each requirement in the SOW is uniquely identified by a designator of the form SOWxxx/’-) and a title/description.

d. Some SOW “shall’’ requirements are not uniquely identified. Nevertheless, the Contractor must comply with these requirements. For example, Annex G, the Logistics Support Concept, contains a number of “shall” requirements with which the Contractor must comply.

e. The SOW shall be the primary and binding document in the event of a conflict between the SOW and CDRL.

1.3 STANDARDS FOR INTERPRETATION OF THE SOW

(1) Throughout this SOW, the following standards shall apply:

a. “Shall” statements are binding requirements. “Should” and “may” statements are non-mandatory provisions. “Will” statements are either requirements that do not have to be verified or they are simply future tense statements.

b. Definitions and explanations of terms within the SOW are binding.

c. Whenever requirements are stated herein to "include" a group of items, parameters, or other considerations, "include" shall be construed to mean "include but not limited to".

d. Whenever reference is made to a section, task, or paragraph, the reference shall be constructed to include all subordinate and referenced paragraphs.

e. The Contract data to be delivered as a result of performing the tasks prescribed by this SOW are specified using the relevant SRS/CDRL name(s), as indicated below each respective paragraph or group of paragraphs in curly parentheses.

f. The term “Contractor” shall be interpreted to include the entire Contractor/Subcontractor team.

g. The order of SOW requirements is not intended to specify a priority order unless explicitly stated. The SOW defines all the activities the contractor’s process should cover, i.e. the Contractor’s process description and plans should include where and when these occur.

h. Where referenced standards, specifications, etc. refer to the “Government”, this shall be interpreted to mean “Purchaser”.

i. The use of the term “he” and his” in reference to the Contractor are meant to be gender-neutral.

j. Paragraphs marked “SPARE”, “Not used”, or “N/A” in this SOW are not requirements.

1.4 Overall Requirements

(1) The contractual system requirements are specified in the Procurement Specification (PS) of this contract, but are summarised as follows:

SOW016/- The Contractor shall design, develop, produce, test and install a Voice Loop communications system, at the sites designated in the SOW and Annexes.

The VL system shall deliver a VoIP Voice Communications Alerting and Telephone system to enable execution of SACEURS Air Policing Mission across the NCS Combined Air Operations Centres (CAOCs) and subordinate Control and Reporting Centres (CRCs).

2. APPLICABLE DOCUMENTS AND REFERENCES

(1) The Contractor shall refer to the NCI Agency Book II, Part 4, Section 3, Annex A Applicable Documents, for a complete list of documents, references and terms applicable to this project. The references to documents contained in the text of the SOW are not always exact versions. Any tailoring referenced documents is identified under tables entitles “Applicable Documents” throughout this SOW.

3. DETAILED DEFINITION OF WORK – SCOPE

3.1 Following and Updating Plans

SOW017/- The Contractor shall conduct the relevant activities in accordance with the Purchasers approved plan(s) addressed in this SOW.

SOW018/- Updates to the plan(s) shall be subject to the Purchaser’s approval with the exception of Contractor-internal scheduling information.

SOW019/- Approval of plans shall not in any manner change the requirements of this contract.

3.2 SYSTEM ENGINEERING

SOW020/- The Contractor shall establish and manage an appropriate integrated System Engineering process to develop the required deliverables and products.

SOW021/- The Contractor shall use the standards identified in this section or map to these standards any equivalent national, EU or international standards used in the development of the Voice Loop System.

SOW022/- Any standards and tasks in this section not covered by the equivalent national, EU or international standards used in the development of the Voice Loop System shall be identified and implemented by the Contractor.

3.2.1 System Engineering Management

SOW023/- The Contractor shall plan, coordinate and fully integrate the technical tasks and requirements included in this SOW to produce a single and complete System Engineering process.

SOW024/- The planning and execution of the required technical tasks shall demonstrate multidisciplinary teamwork whereby all appropriate technical disciplines are applied.

SOW025/- The Contractor shall establish effective control over the System Engineering process, including subcontracted items and services, to ensure that cost, performance and schedule requirements are being met, to provide early indication of potential problems and their resolution, and to reduce risk.

SOW026/- The Contractor shall tailor processes described in MIL-STD-499C (Draft) to meet the System Engineering requirements of the Project.

SOW027/- The Contractor shall document the System Engineering and management processes adopted in the Systems Engineering Management Plan (SEMP).

SOW028/- The SEMP shall coordinate and fully integrate the technical, project management tasks and requirements included in the Project SOW and PS and shall include analysis, functional analysis, allocation, and synthesis for the design of the system.

SOW029/- All Contractors engineered tailoring activities required to ensure the system engineering process results in a fully compliant product shall be documented within the SEMP.

SOW030/- The Contractor shall implement the tailored System Engineering process only after approval by the purchaser.

SOW031/- The Contractor shall include the planning of System Engineering activities for the Project in the SEMP and Master Implementation Project Schedule (MIPS) as described in the Project Management section of this document.

{SWSEMP}
{PMMIPS}

SOW032/- The requirements of the Project shall be imported into a Microsoft Project and MS Office, non-propriety database, where they may be linked to other specifications and activities, particularly those associated with the requirement validation process.

SOW033/- The Contractor utilised database for requirement capture shall be made available for the Purchaser and shall be configuration controlled and managed in line with the ANNEX F - Configuration Management Requirements Document (CMRD) to this SOW and subsequently in line with the approved Contractor CMP.

SOW034/- The contractor shall conduct analysis of the selected design, identify and conduct trade studies, functional analysis, allocation trade-off analysis and cost effectiveness analysis to ensure that a thorough and comprehensive set of options and alternatives is considered and analysed for the design, with

consideration for all aspects of the system life cycle and system life cycle cost. Design documentation shall include all discussion of alternatives, risk assessment and trade-offs.

3.2.2 Contractor System Engineering Tasks.

SOW035/- The Contractor shall define, document and implement a requirements management process in line with the Contract.

SOW036/- The Contractor shall conduct Test and Evaluation processes in accordance with Part 4, Section 1, Annex E of the SOW, to validate that the required Procurement Specifications are met by the VL system.

SOW037/- During integration of the VL capability at the operational sites, the Contractor shall ensure that the integration and installation activities does not remove any existing C2 communications or affect any existing NATIMNADS operational functions or capabilities.

SOW038/- The Contractor shall successfully integrate and validate the functional operation of the VL capability into 37 NATO designated ground sites (four additional French sites shall be included as a contract option) these are detailed at Annex D.

SOW039/- The Contractor shall perform Site Acceptance Testing (SAT), to verify that the performance of the installed VL equipment does not impact other electronic equipment on the site and that the installed equipment meets the sites operational requirements, and NATO Minimum Military Requirement (MMR) and overall Project Military Operational Requirements (MOR).

SOW040/- Based on the Project Procurement Specification and resulting design, the Contractor shall quantify the minimum and optimal internal and external communications requirements, in terms of network bandwidth and transmission type (E1/ISDN/IP).

SOW041/- The Site Installation Phase is a key element of the Project that shall deliver a fully integrated, VL system at the accepted sites on a rolling basis.

(1) The Site Adaptation Phase shall require work to be undertaken as follows:

SOW042/- Individual site assessments.

SOW043/- Production and agreement of site adaptation activity, site drawings and plans.

SOW044/- Identification of any National Authority and Military permissions required (planning and site adaptation related, bandwidth, environmental and power requirements and support obtaining their agreement via the appropriate national routes with Purchaser support.

SOW045/- Identification of any NATO authority/Agency and Military permissions required (planning NATO network system bandwidth requirements, point to point network communication architecture's and NATO Communications and Information Agency (NCI Agency) NATO Ground Communications System (NGCS) Service Provision requests, with Purchaser support.

(2) The Site Installation and Check-out and Site Acceptance Tests (SAT) requirements:

SOW046/- VL Communications equipment installation, integration, Operational Test and Evaluation (OT&E).

SOW047/- Completion of inspections at the appropriate points in the site program (equipment inspections, installations and site and TEMPEST design and installation analysis.

{CMRAR}
{SWSPSPB0}

3.2.3 TECHNICAL REVIEWS

3.2.3.1 General

SOW048/- The Contractor shall conduct and document the technical reviews in accordance with Contract requirements, the SEMP, MIL-STD-499C (DRAFT) and MIL-STD-1521B

{SWSEMP}
{PMCONFA}
PMCONFM}

(1) Technical reviews are intended to allow focus on evolving products, technical characteristics and issues associated by individual national site installation, national legislation and national engineering requirements.

For each technical review, the contractor shall:

SOW049/- SPARE

SOW050/- Provide well defined entry and exit criteria for Purchaser approval.

SOW051/- Demonstrate, wherever possible, the products under review rather than "paper view" methods.

SOW052/- Substantiate decisions with technical details and associated rationale.

SOW053/- Ensure appropriate participation including that of subcontractors, vendors and suppliers.

SOW054/- Host the review at an appropriate Contractor facility (or facilities) of where possible demonstrate capability delivery through another Contractor Client site demonstration.

SOW055/- Provide information and items necessary to demonstrate and confirm that the accomplishments associated with the relevant event as identified in the MIPS have been satisfied.

SOW056/- Provide administrative support (e.g. resources, materials, meeting rooms, security clerical).

SOW057/- Provide agendas.

SOW058/- Provide minutes which document the proceedings including key points, decisions and issues with associated rationale, open and unresolved items with their desired closure requirements and responsibilities.

(2) Entry Criteria defines the design baseline and provides the framework for the design review. The purchaser will make the determination as to whether or not the Project is ready to enter the design review. The following items represent the minimum entry criteria for design reviews:

a. No outstanding pre-view actions.

b. Timely submission of required CDRL items in accordance with the SOW, sufficiently in advance of the technical review to permit Purchaser review.

c. Requirements Traceability Matrix (RTM), allowing the purchaser to verify all Purchaser requirements have been addressed in the design.

d. Software (SW) design documentation, adequate disclosure of SW design approach information.

e. Hardware (HW) design documentation, adequate disclosure of HW design information.

f. Risk assessment and mitigation plans.

g. Coordination, submittal and acceptance of design review agenda.

(3) Exit criteria are the minimum essential items necessary to successfully complete a design review, before proceeding on to the next project phase. The Purchaser will make the determination as to whether or not the Project is ready to proceed to the next phase based upon successful completion of the exit criteria. The following items represent the minimum exit criteria for a design review:

a. Successful resolution and closure of all action items.

b. Revision of the CDRL items to reflect the Purchaser's review comments.

c. Submittal of the design review presentation material.

d. Submittal and acceptance of the design review minutes.

e. Design review exit criteria checklists.

3.2.3.2 System Requirements Review

SOW059/- The Contractor shall conduct a System Requirements Review (SRR) with the following high level objectives:

SOW060/- The Contractor shall present the draft Functional baseline (FBL) and requirements analysis, flow down and verification process.

SOW061/- The Contractor shall demonstrate that the Project Requirements have been correctly interpreted.

SOW062/- The Contractor shall confirm that the design is fully compliant with these requirements.

SOW063/- The Contractor shall identify any risks associated with the design implementation and confirm that they are at acceptable levels.

3.2.3.3 Test Readiness Reviews

SOW064/- The Contractor shall conduct Test Readiness Reviews (TRR) in accordance with Annex E to the SOW - Purchaser Test and Evaluation Master Plan (TEMP).

(1) The successful outcome of these reviews shall be Purchaser approval to proceed to formal test and evaluation, possibly with review actions before eventually proceeding to the next stage of development, test or installation. Approval to proceed may possibly be linked to review actions.

3.2.4 INTERFACE ENGINEERING AND INTEGRATION

(1) At Contract Award, the Purchaser will make available the latest version of the NATO Operational Documents and Requirements and associated data, for the contractor to

implement the Project. Given the short design and implementation time-lines, these document standards will remain fixed throughout the project implementation. The Purchaser retains the right to amend these document standards, through mutual negotiation with the Contractor, subject to urgent operational changes in procedures or policies.

SOW065/- The Contractor shall enable the designed technical solution to interface with PFP Multiplexers at each of the operational sites. VL data will need to be transmitted unencrypted via a PFP Multiplexer, through National Defence Networks (NDN) Communication systems, to the national NATO Point of Presence (PoP) for the NGCS network. An IP derived technical solution is the purchasers desired optimal solution, in order to facilitate NATO PFP IP up-grade programmes.

SOW066/- With the support of the Purchaser, the Contractor shall coordinate the required system bandwidth and data to be transmitted via NGCS from each respective CRC to the respective CAOC/SADC PoP.

3.2.5. Voice Data

SOW067/- The complete communication within the new IP based VL system shall be as often as possible end-to-end. The network will be the common used media for the complete system architecture therefore the network has to be set up in a complete redundant design.

SOW068/- The complete VL system shall provide central administration capabilities. All configuration changes shall be replicated automatically on the different clustered systems.

SOW069/- The complete VL system shall operate completely without service loss during a primary system failure.

3.2.5.1 Quality of Service (QoS)

(1) Quality of service is a key factor for a successful implementation of the new VL system into NATO's IP backbone.

SOW070/- To ensure a 100% reliable system design all Voice over IP (VoIP) traffic including signalling traffic and an voice payload shall be sent over the NGCS segments in dedicated voice VLANs and MPLS VRFs.

(2) The complete layer 2 and layer 3 components involved in transmitting signalling or voice payload traffic need to be QoS enabled. A priority queue for voice traffic has to be provided to guarantee priority based voice traffic before transmitting data traffic.

SOW071/- The QoS setup shall be implemented end to end for all VL locations.

3.2.6 APPLICABLE DOCUMENTS – SYSTEM ENGINEERING

Document Reference	Title	Application
MIL-STD-499C (Draft) – 24	Systems Engineering	All
MIL-STD-498 - 05 December 1994	Software Development and Documentation	All
MIL-STD-1521B – 04 June 1985	Technical Reviews and Audits For Systems, Equipment's and Computer Software	All

3.2.7 APPLICABLE DOCUMENTS – SAFETY ENGINEERING

Document Reference	**Title**	**Application**
MIL-STD-882C - 19 January 1993	Military Standard System Safety Program Requirements	Applicable tasks: 01,102,103,104,105,106,107, 202, 203, 204, 205, 206, 207, 301, 302, 303
ESARR4 - Edition 1.0 05-04-01	Risk Assessment and Mitigation in ATM	All

3.2.8 SECURITY ENGINEERING

SOW072/- The VL system shall be compliant with the requirements of NATO Security Policy (C-M (2002)49 Reference, Annex A) and it's supporting Directives and Guidelines.

SOW073/- The VL system shall operate in the "System Low" Mode of Operation handling NATO unclassified data as its primary mode of operation.

SOW074 The VL system shall be able to be upgraded to operate in the "System High" Mode of Operation handling NATO classified data up to NATO SECRET at a future date.

SOW075/- The VL system shall be able to provide unencrypted voice communication across the system as a standalone capability.

SOW076/- The system shall be able to be encrypted at a future date by the inclusion of Purchaser provided voice/data encryption devices at each site.

(1) NATO Military Committee (MC) approved cryptographic mechanism and equipment shall be used in the event of future encryption,. The MC approved mechanism and equipment is listed in AC/322-D/0062, NATO INFOSEC Technical and

Implementation Directive for an INFOSEC Product, Protection Profile and Package List.

SOW077/- The VL system shall be TEMPEST certified in accordance with the requirements of SDIP-27.

(2) TEMPEST zoning diagrams will be available to the Contractor on a site by site basis as part of the individual site survey activities.

SOW078/- The Contractor shall provide a System Security Engineering Plan (SSEP) as part of the SEMP. The SSEP shall define the Contractor's system security engineering program to ensure:

a. Adequacy of information system security.

b. Delivery of a system fully compliant with local site security architectural design and site security specifications.

SOW079/- SPARE
SOW080/- SPARE

3.2.8.1 Security Architectural Design

SOW081/- The Contractor shall provide the security architectural design for the system based on refinement of the security architectural design i.e. identifying the security relevant components of the system, their interfaces and networking, a concept of execution and the traceability between the site components, security features and requirements.

SOW082/- The Security architecture design shall include an Interface Design Description (IDD).

{SWIDD0}

3.2.8.2 TEMPEST Integrity

SOW083/- The Contractor shall design and develop the equipment purchased under this Contract in accordance with SDIP-27 and SDIP-28.

SOW084/- The Contractor shall integrate applicable PFP provided under this Contract in accordance with SDIP-27 and SDIP-28.

SOW085/- INFOSEC Technical and Implementation Directive on Emission Security as laid down in AC/322-D (2007)0036 dated 12 July 2007 shall be followed.

3.2.8.3 Security Assurance Levels

SOW086/- The NATO C3 Board (AC/322) NATO INFOSEC Technical and Implementation Guidance for the Assessment of Assurance Levels in Specific CIS Environments) AC/322-D (2005)0043 shall be applied.

SOW087/- The application of the proposed security assurance levels must be agreed by the Purchaser and the Security Accreditation Authority before implementation.

(1) Preference shall be given to secure products from the NATO INFOSEC Technical and Implementation Directive for an INFOSEC Product, Protection Profile and Package List (AC/322-D/0062).

SOW088/- For any proposed non-certified security product, the Contractor shall submit full details and justification including vendor and product information, evaluation history and status, schedule and body of the evaluation for Purchaser review and approval.

3.2.8.4 Applicable Documents – Security Engineering

Document Reference	Title	Application
C-M (2002)49	NATO Security Policy	Reference, Annex A and its supporting Directives and Guidelines
AC/322-D/0062	NATO C3 Board (AC/322) NATO INFOSEC Technical and Implementation Directive for an INFOSEC Product, Protection Profile and Package List.	All
SDIP-27, SDIP-28 and SDIP-29	NATO TEMPEST SECAN Doctrine and Information Publications	Relevant Parts
AC/322-D (2007)0036 - 12 July 2007	NATO C3 Board (AC/322) NATO INFOSEC Technical and Implementation Directive on Emission Security	All
AC/322-D (2005)0043	NATO C3 Board (AC/322) NATO INFOSEC Technical and Implementation Guidance for the Assessment of Assurance Levels in Specific CIS Environments)	All

3.2.9 Electromagnetic Interference Compatibility

SOW089/- The Contractor shall establish and maintain an Electromagnetic Interference Compatibility Program (EMICP) to ensure that the VL capability is electromagnetically compatible with the internal and external electromagnetic environment and that system effectiveness is not degraded by the external electromagnetic environment.

{SWSEMP}

SOW090/- The following six classes of interference may impact on the operation of the VL and other equipment and shall be considered by the Contractor when designing and integrating the VL system:

a. Susceptibility to radiated transmission - from radio equipment at the operational sites.

b. Susceptibility to conducted emissions – the VL shall not be affected by conducted emissions through power cables and signal wiring.

c. Source of conducted emissions – the VL system shall not be a source of conducted emissions that can affect radio and other equipment.

d. Susceptibility to induced emissions – The VL system can be affected by magnetic coupling of Alternating Current (AC) signals from one conductor to another.

e. Source of induced emissions – The VL system can be the source of magnetic coupling causing induced AC fields in radios and other equipment.

f. Susceptibility to electrostatic discharge – The VL system can be affected by electro-static discharge from a build-up on a body discharged through contact with electrical devices.

SOW091/- The Contractor shall conduct EMC analysis to determine if there are and EMC issues caused by the installation of the VL equipment into each site.

SOW092/- The Contractor and Territorial Host Nation (THN) that owns the site concerned shall resolve any EMC issues discovered during this analysis.

SOW093/- The Contractor shall document the traceability between the EMC problems detected and their resolution in an EMC Report and provide this document to the Purchaser for approval.

SOW094/- SPARE
SOW095/- SPARE
SOW096/- SPARE

3.2.9.1 Applicable Documents – Electromagnetic Interference Compatibility

Document Reference	Title	Application
MIL-STD-461E	Requirements for the Control of Electromagnetic Interference characteristics of Subsystems and Equipment	RS103

3.3 DEVELOPMENT

3.3.1 Hardware Design and Development

3.3.1.1 General

SOW097/- The Contractor shall provide all the requisite hardware to produce a fully compliant and functional VL capability as per the requirements in this Project and SOW.

SOW098/- The Contractor shall use COTS equipment to the maximum extent possible to fulfil the requirements of the PS.

3.3.1.2 Reused Products

SOW099/- If the Contractor chooses to use Non-COTS or reuse existing products, such use shall be subject to the provisions defined in the Contract and including this document.

SOW100/- The Contractor shall identify, evaluate and where practical, make use of reusable software products in fulfilling the requirements of the Contract.

SOW101/- The Contractor shall identify, evaluate and where practical, make use of reusable hardware at the designated sites where applicable.

SOW102/- During the Site Survey, the Contractor shall assess with the Territorial Host Nation (THN) the re-use of existing HW, Server racks and power supplies and other associated site equipment. The opportunity to re-use on site equipment/HW shall be highlighted by the Contractor on completion of each site survey.

3.3.1.3 COTS Products and COTS Products Upgrades

SOW103/- For COTS products, the Contractor shall make maximum use of existing COTS product data to eliminate duplication of implementation effort and minimize related costs.

SOW104/- The Contractor strategy for incorporating current production hardware throughout the contracting period, including necessary upgrades and/or replacements, shall be detailed within the SEMP.

SOW105/- The Contractor shall replace COTS hardware which is not in current production at the time of each PSA with COTS hardware which is in current production.

SOW106/- SPARE
SOW107/- SPARE

{SWSEMP}

3.3.1.4 Hardware Configuration Item Architectural Design

SOW108/- The Contractor shall decompose the Project hardware into Hardware Configuration Items (HWCI) as necessary and document the Architectural Design in the System/Subsystem Design Description (SSDD).

SOW109/- The Contractor shall provide the COTS equipment manufacturer's commercial manuals, drawings, ICDs, and performance data for each COTS HWCI and with each delivered VL system.

SOW110/- The Contractor shall provide the architectural design of each non COTS HWCI, and the traceability between the HWCI's components and the CI requirements in the SSDD and the Conceptual Design Drawings (CDD).

SOW111/- The Contractor shall provide a detailed description of the non-COTS hardware design HWCI in the SSDD.

SOW112/- The Contractor shall update the design description of each non-COTS CI in the SSDD and provide Product Drawings and associated Equipment lists to match the "as-built" hardware in accordance with MIL-STD-100G and the requirements contained in the CMRD - Annex F of this SOW.

{SWSSDD}
{HWCDD}

3.3.1.5 HWCI Detailed Design

SOW113/- The Contractor shall provide a detailed description of the hardware design in the SSDD and the Developmental Design Drawings (DDD).

{HWPD0}

SOW114/- The Contractor shall decompose the Project PS requirements into the requisite HWCI's required for the Project.

{SWSSDD}
{HWDDD}

3.3.1.6 Hardware Implementation

SOW115/- The Contractor shall document the "as-built" hardware design. The Contractor shall update the design description of each HWCI in the SSDD and provide Product Drawings to match the "as built" hardware.

{SWSSDD}

3.3.1.7 Hardware Selection and Procurement

SOW116/- The Contractor shall provide a HWDDD CDRL describing the proposed hardware components (PFP, COTS or Developed Item) that form the hardware design.

{HWDDD}

SOW117/- The Contractor shall provide COTS hardware except when:

a. Project PS requirements cannot be met by a COTS item;

b. Necessary operational and logistic support cannot be provided or maintained;

SOW118/- If a Developed Item is proposed (either developed specifically for the Project or as a modification to an existing COTS item); the Contractor shall include the support implications of this in the proposal.

SOW119/- When COTS hardware conflict with the requirement of SOW 117 above; the Contractor shall develop a fully justified trade-off analysis report to be delivered as an Engineering Notebook (ENB) for Purchaser review.

SOW120/- SPARE
SOW121/- SPARE
SOW122/- SPARE

3.3.1.7.1 Purchaser Directed Buy

SOW123/- The Contractor shall have full responsibility for the procurement of VL system equipment to support Project implementation and post Project support. This responsibility excludes those Purchaser responsibilities covered in the PFP section.

3.3.1.7.2 Purchaser Furnished Property

SOW124/- All Purchaser furnished equipment, information and Intellectual Property (IP) provided by the Purchaser shall be classified as Purchaser Furnished Property (PFP) under this Project.

SOW125/- The Contractor shall identify and agree with the Purchaser upon Contract Award (CA) all requirements for PFP including delivery points and dates to support the Project.

SOW126/- The Contractor shall analyse the suitability of all PFP specified by the Purchaser and shall report any perceived deficiencies at Technical Reviews with regard to performance, integration and life cycle costs.

SOW127/- The Contractor shall raise a PFP deficiency report and provide this to the Purchaser, for all items of PFP received which are deemed to be deficient in any manner.

SOW128/- SPARE
SOW129/- SPARE
SOW130/- SPARE

(1) A list of planned PFP is presented in Part 4, Section 2, Annex A to the Project PS.

SOW131/- The Contractor shall have full responsibility for the integration of all PFP with Contractor Furnished Equipment (CFE).

3.3.2 SOFTWARE DEVELOPMENT

3.3.2.1 General

SOW132/- The Contractor shall establish a software development process consistent with Contract requirements in accordance with MIL-STD-498.

SOW133/- SPARE

(1) Software development shall be an integrated part of the systems engineering process. The integration shall be described in the SEMP.

(2) All software shall be managed in accordance with the Software Development Plan (SDP).

SOW134/- The Contractor shall use a non-proprietary, systematic, well documented software engineering methodology which may comprise several non-proprietary systematic methods being fully integrated.

SOW135/- The software engineering methodology, its methods, the coupling between various methods, the supporting tools, and the mapping onto the total life cycle shall be described in or referenced from the SDP.

SOW136/- The Contractor shall employ tool supported modelling to capture requirements, design and implementation.

(3) Software to be delivered may comprise COTS software or Developed Item software.

SOW137/- Where applicable for COTS software products, the Contractor shall make use of existing COTS product data to eliminate duplication of implementation effort and minimize related costs:

SOW138/- If COTS software is used; the Contractor shall describe his strategy for incorporating this software including necessary upgrades and/or replacements throughout the contracting period in the SDP.

SOW139/- COTS software upgrades, if required, shall be frozen on installation of the VL system at the first site to allow for a single retrofit of all sites after successful completion of final PSA but prior to the last Final System Acceptance (FSyA).

SOW140/- The Contractor shall be responsible until the completion of the last FSyA for upgrading all COTS software to the version which is commercially available and interoperable with other selected COTS software and hardware at that point.

SOW141/- The Contractor shall ensure that the COTS software versions which he provides to the Purchaser sites are identical at all times.

SOW142/- The Contractor shall provide licenses for all COTS software which is provided under the VL Contract.

SOW143/- The Contractor shall describe the planning, layout, and schedule of the software builds in the SDP. Refinements to the planning of the software builds will be on going as the Project proceeds, but refinements proposed shall be communicated via the SDP.

SOW144/- The Contractor shall describe the tailoring of software development activities with regards to software builds in the SDP based on MIL-STD-498.

SOW145/- The Contractor shall describe in the SDP his approach of tailoring software development activities with regards to incorporation of COTS and Developed Item software based on MIL-STD-498, Appendix. B, Section 4. Refinements to these tailoring decisions may be on going as the Project proceeds, but tailoring proposed shall be communicated via the SDP.

SOW146/- Using the tailored software development process, as a minimum the Contractor shall provide the following CDRLs for the VL system:

a. Software Development Plan (SDP).

b. Software Requirements Specification (SwRS).
c. System/Subsystem Design Description (SSDD).
d. Software Architecture Description (SAD).
e. Interface Requirement Specification (IRS).
f. Interface Design Description (IDD).
g. Software Design Description (SDD).
h. Software Product Specification (SPS).
i. Software Version Description (SVD).

SOW147/- The Contractor shall implement a Software Corrective Action System in accordance with MILSTD-498, paragraph 8.17 and describe it in the SDP.

SOW148/- The Contractor shall establish and control a Software Development Library (SWDL), to facilitate the orderly development and subsequent support of software. The SWDL shall be an integral part of the integrated software engineering environment.

SOW149/- The Contractor shall verify that the functional and performance requirements and the detailed design of each computer CSCI shall satisfy the functional baseline requirements for the Project.

(4) At no later than Contract Award (CA) the Purchaser will make available the latest version of the relevant operational documents to support the Contractors interface development.

SOW150/- The software products for the project shall consist of the following:

a. Configured VL system operational SW at each of the sites.

b. Configured VL system operational HW at each of the sites.

c. Configured VL HCI system operational SW at each of the sites.

SOW151/- The Contractor shall develop and provide a Software Version Description (SVD) for all SW utilized in the Project.

SOW152/- SPARE
SOW153/- SPARE
SOW054/- SPARE

3.4 MANUFACTURING MANAGEMENT

3.4.1 Producibility

SOW155/- The Contractor shall subject all new hardware designs, system integration approaches and design changes to specific, structured Producibility analyses

as an integral part of the design/change process. The analysis of Producibility shall consider, but not necessarily be limited to, the following characteristics:

a. Manufacturing process selection for cost/simplicity/repeatability;
b. Tolerances selected (dimensional and performance);
c. Material availability/manufacturing suitability/substitution possibility;
d. Parts commonality/inter-changeability;
e. Production test requirements/test equipment availability as detailed in Part 4, Section 1, Annex E - TEMP;
f. Critical/long lead material.

SOW156/- Producibility analysis reports shall be produced in the Contractor's format and shall report on the results of producibility analysis efforts of the Contractor and Subcontractors. This report shall be made available to the Purchaser for in-plant reviews as appropriate.

3.5 TEST AND EVALUATION

SOW157/- The Contractor shall conduct a Test and Evaluation program in accordance with the Test and Evaluation Master Plan (TEMP) contained in Part 4, Section 1, Annex E of this SOW.

(1) The Test and Evaluation program requires the following CDRLs to be delivered:

a. Conference Agendas and minutes for Test Readiness Reviews (TRR);
b. TRR Review Documentation;
c. Test Tool Software User's Manual;
d. Test Plan;
e. Test Descriptions;
f. Test Reports.

{PMCONFA}
{PMCONFM}
{TETRRD}
{TETSUM}
{TETP}
{TETD}
{TETR}

3.6. SITE IMPLEMENTATION

(1) This section describes implementation activities that the Contractor shall perform in order to allow site adaptation and VL system installation at the nominated sites.

SOW158/- The Purchaser will identify to the Contractor the earliest date when site visits can be carried out for each site. This selected date will ensure the site is mature enough to allow the information gleaned from a survey to be utilized in Engineering Change Proposal (ECP) preparation.

(2) NCI Agency intends to identify a set number of sites at Effective Date of Contract (EDC) and update the list periodically as sites become available.

3.6.1. Site Installation Locations

SOW159/- The Contractor shall perform the required site adaptation works and install the VL system at the sites listed in Part 4, Section 1, Annex D of this SOW.

(1) The Purchaser reserves the right to re-order the site list, subject to discussion with the Contractor.

3.6.2. Site Civil Engineering

SOW160/- The Contractor shall be responsible for the planning, engineering, and the installation of the VL system at the nominated site.

SOW161/- The Contractor shall perform all work in accordance with the Site Engineering Documentation (SED):

a. Site Adaptation Requirement Drawings (SARD);
b. Installation Engineering Plan (IEP);
c. Site Activation Plan (SAP);
d. As Built Drawings (ABDs);
e. Construction Permits;
f. Site Surveys;
g. Site Inspection Reports;
h. TEMPEST Zoning and Inspection Reports.

{SPSARD}
{SPIEP}
{SPABD}

3.6.3. Site Engineering Activities

3.6.3.1 Site Surveys

SOW162/- The Contractor shall perform a detailed site survey of each designated ground site to gather the data necessary to determine the most effective way to install and integrate the VL system into the site. This shall include conducting the necessary site engineering studies and identification of the required site adaptation works needed to be performed in order to prepare the site.

SOW163/- The output of the site survey shall be provided to the Purchaser as a detailed report accompanying the SARD CDRL. This CDRL shall support formulation of Task Orders covering site adaptation activity on a site by site basis.

{SPSARD}

3.6.3.2 Site Adaptations

(1) Site adaptation works (such as wall partitions, false floor adaptations, cable tray installations, grounding, power, air conditioning adaptations, etc.) will be required at all sites to varying degrees dependent upon site maturity.

SOW164/- The Contractor shall provide SARDs that clearly list the site adaptation work that needs to be performed. SARDs shall also include the pre-installation drawings. SARDs and pre-installation drawings shall be red-lined during installation and check-out if errors are identified. The redlined corrections shall be incorporated into the ABDs.

{SPSARD}
{SPABD}

3.6.3.3 Site Verification Inspection

SOW165/- The Contractor shall conduct the Site Verification Inspection (SVI) in the presence of Purchaser representatives to ascertain compliance of site adaptation works carried out in accordance with the SED. Upon acceptance of the site adaptation works by the Purchaser, the Contractor will be given permission to install the equipment but shall not be relieved of any responsibility concerning the site preparation.

3.6.3.4 Installation Inspections

SOW166/- The Contractor shall make a Pre-Installation Inspection prior to commencing work in the area and after notifying the Purchaser at least 30 days in advance.

SOW167/- The Contractor shall perform a second, Post-Installation Inspection upon the termination of the work in the area.

(1) Both inspections shall be made in the presence of a Purchaser representative and shall serve as the basis for whether any damage to the building and/or equipment has been caused by the Contractor.

3.6.3.5 Delivery, Installation and Check-Out

SOW168/- The Contractor shall deliver, install and check-out equipment in accordance with the SED for the site.

SOW169/- The Contractor shall install and check-out the equipment without causing any degradation of the normal site operations, unless the Purchaser was notified in advance and permission has been granted allowing this degradation.

SOW170/- The Contractor shall provide all materials needed to complete the installation.

SOW171/- The Contractor shall observe the site fire, and safety regulations.

3.6.3.6 Site TEMPEST Integrity

SOW172/- The Contractor shall install the VL system in accordance with SDIP-29 and SDIP-28.

(1) The Purchaser will be responsible for coordinating any necessary attendance of NATO Communication Security (COMSEC) personnel and making available the TEMPEST zoning drawing of the facility.

SOW173/- The Contractor shall conduct a TEMPEST installation inspection to verify that TEMPEST integrity is maintained and the equipment installation is performed in accordance with SDIP-27/29.

SOW174/- The Contractor shall conduct, or have contracted, an Emissions Security test of the VL system to certify that the TEMPEST zoning criteria are being met in accordance with the SOW T&E requirements (see section 3.5).

SOW175/- The Contractor shall provide evidence of the properly completed TEMPEST inspection to the Purchaser.

3.6.3.7 As-Built Drawings

SOW176/- The Contractor shall provide the As-Built Drawings (ABD) which reflects final layout and wiring of equipment installed. The drawings shall be compiled following the ACE COMSEC Directive N. 5.

SOW177/- The Contractor shall provide ABDs which reflect the final layout and wiring of equipment installed, in accordance with MIL-STD-100G and ACE COMSEC Directive N. 5.

(1) The Contractor's ABDs shall be delivered in the International Graphical Exchange Standards (IGES) format.

{SPABD}

3.6.3.8 Site Clean-Up

SOW178/- When installing equipment, the Contractor shall clean-up the work areas to the maximum extent possible at the end of each day to minimize the impact on operational and daily site activities.

SOW179/- The Contractor shall be responsible for site clean-up functions in his area of responsibility and shall clean up and remove all debris at the end of installation. This clean-up shall include repairing and repainting of walls,

floors, ceilings, and other equipment/furniture which have become damaged due to the hardware installation work.

3.6.3.9 Site Compliance Inspection

SOW180/- Upon completion of hardware installation, the Contractor shall notify the Purchaser of his readiness for Site Compliance Inspection (SCI).

SOW181/- The Contractor shall perform the SCI to verify installation including the required inspections compliance with the SED, the PS, and the relevant NATO and National Standards indicated in Additional Part 4, Section 3, Annex B – Applicable Documents.

SOW182/- The Contractor shall provide evidence, prior to SCI, to include Data Sheets and required Certificates of Conformities for all materials/items used for the installation, proof that the have been certified by a nationally accredited organization (Ministry or Department of Defence Body, an Institution, or a Company), and that all work is in conformance with respective national laws and regulations.

SOW183/- The Contractor shall rectify any deficiencies identified during the SCI within a timeline to be agreed with the Purchaser.

3.6.3.10 Contractor Access to Facilities

(1) The Contractor's access to the site and to other facilities is subject to the conditions to be specified by the Purchaser and the relevant THN.

(2) Arrangements related to working time available to the Contractor shall be agreed on a site by site basis with the Purchaser.

SOW184/- SPARE
SOW185/- SPARE

3.7 CONFIGURATION MANAGEMENT

3.7.1 Configuration Management System

SOW186/- The Contractor shall implement an internal Configuration Management (CM) system for the control of all Requirements, Configuration Items (CIs), Configuration Baselines, Contract documentation, configuration documentation, physical media and physical parts representing or comprising

the product in accordance with this SOW and the Part 4, Section 2, Annex F – Configuration Management Requirements Document (CMRD). The Contractor shall implement the CM requirements specified in the CMRD.

3.8 Logistics Support

3.8.1 Integrated Logistic Support Program

SOW187/- The Contractor shall plan, integrate and manage Integrated Logistic Support (ILS) in accordance with the individual logistics support sections which follow below.

SOW188/- The Contractor shall document his ILS Program in an Integrated Support Plan (ISP).

{ILSISUP}

(1) The Logistic Support Concept (LSC) is a high-level framework of conditions and instructions which are relevant to the employment and support of the VL Project equipment. The LSC is contained in Part 4, Section 1, Annex G to this SOW.

SOW189/- The Contractor shall observe and comply with the overall guidance in the LSC.

SOW190/- The Contractor shall ensure that logistics considerations and logistics planning are an integral part of the system design and production processes.

3.8.2 Maintenance Planning

SOW191/- The Contractor shall develop the detailed maintenance support requirements for the hardware and software during the system design and implementation process and shall identify any elements requiring special maintenance procedures.

SOW192/- The Contractor shall document information gathered for, or developed from, LSA tasks in a Logistics Support Analysis Record (LSAR) in accordance with MIL-STD-1388-2B.

{ILSLSAX}

SOW193/- The Contractor shall host a single Logistics Guidance Conference (LGC) within 120 days of CA. The aim of the LGC is to provide the Purchaser with the Contractor's approach to the contracted ILS Program. The Logistic Guidance Conference shall also comply with the following:

a. The Agenda shall include at least a presentation on each ILS element: LSA, Technical Manuals (TM), Supply Support and Training and RAMT;

b. The Contractor shall provide the agenda and minutes of this Conference to the Purchaser.

{PMCONFA}

{PMCONFM}

SOW194/- SPARE

SOW195/- SPARE

3.8.3 Hardware Maintenance Concept

(1) The Project hardware maintenance concept is described in the LSC, Part 4, Section 1, Annex G (paragraph 4.2.) to this SOW.

SOW196/- The Contractor shall design the system to be logistically supportable for a minimum of ten years following completion of the warranty.

(2) Hardware Maintenance Level 1/Level 2 (HL1/2) activities shall be combined.

3.8.4 Software Maintenance Concept

(1) The Project software maintenance concept is described in the LSC, Annex G (paragraph 4.3.) to this SOW.

3.8.5 Logistic Support Analysis

SOW197/- The Contractor shall establish an LSA Program in accordance with MIL-STD-1388-1A and document it in the LSA Plan (LSAP), as an annex of the ISP.

{ILSISUP}

SOW198/- The Contractor's LSA Program shall be a progressive effort, performed incrementally and in parallel with the Project design process.

SOW199/- The Contractor's LSA Program shall support the generation of source data for ILS development efforts.

SOW200/- The LSA process shall address hardware and software system elements that are maintenance significant items, down respectively to Line Replaceable Unit (LRU) and Software Significant Item (SSI) levels.

{ILSLSAX}

(1) Approval by the Purchaser shall establish the initial logistic support baseline from which all logistic elements will be determined for that system/subsystem/equipment.

{ILSLSAX}

3.8.5.1 Logistic Support Analysis Plan

SOW201/- The Contractor shall provide a single LSA Plan (LSAP) in accordance with the requirements of LSA subtask 102.2.1 of MIL-STD-1388-1A.

{ILSISUP}

SOW202/- The Contractor shall update the LSAP in accordance with the requirements of LSA subtask 102.2.2 of MIL-STD-1388-1A.

{ILSISUP}

3.8.5.2 Functional Requirements Identification

SOW203/- The Contractor shall perform the following subtasks (for Project hardware and software, including PFP):

a. The Contractor shall identify and document the support operations and maintenance functions that must be performed in accordance with subtask 301.2.1 of MIL-STD-1388-1A;

b. The Contractor shall analyse the results of the Project FMECA to identify and document corrective maintenance tasks in accordance with subtask 301.2.4.1 of MIL-STD-1388-1A;

c. The Contractor shall identify support operation tasks, maintenance tasks (including both corrective and preventive maintenance tasks) and other support tasks in accordance with subtask 301.2.4.3 of MIL-STD-1388-1A;

d. The Contractor shall document the results of these analyses in the LSAR (SOW 3.10.3.8.1.) in accordance with subtask 301.2.6 of MIL-STD-1388-1A, and shall update it as data becomes better defined.

{ILSLSAX}

3.8.5.3 Task Analysis

SOW204/- The Contractor shall perform task analysis for all tasks identified under SOW functional requirements identification in accordance with subtask 401.2.1 of MIL-STD-1388-1A.

SOW205/- This analysis shall be carried out for all Project hardware and software and the results of this task shall be documented in the LSAR in accordance with sub-task 401.2.2 of MIL-STD-1388-1A.

{ILSLSAX}

SOW206/- The Contractor shall perform new or critical logistic support resources analysis in accordance with subtask 401.2.3 of MIL-STD-1388-1A and document the results in the LSAR.

{ILSLSAX}

SOW207/- The Contractor shall identify training requirements and provide training recommendations in accordance with subtask 401.2.4 of MIL-STD-1388-1A and document the results in the LSAR. Refer to SOW 3.10.4.

{ILSLSAX}

SOW208/- The Contractor shall document in the LSAR initial provisioning data on those support resources requiring initial provisioning in accordance with subtask 401.2.8 of MIL-STD-1388-1A. The Contractor shall perform this subtask for all HL1 and HL2 maintenance items.

{ILSLSAX}

SOW209/- The Contractor shall update the LSAR data as better information becomes available, in accordance with subtasks 401.2.10 and 401.2.11 of MIL-STD-1388-1A.

{ILSLSAX}

3.8.5.4 Level of Repair Analysis

SOW210/- The Contractor shall perform Level of Repair Analysis (LORA) in accordance with subtask 303.2.7 of MIL-STD-1388-1A.

{ILSLSAX}

SOW211/- The Contractor shall perform a LORA for all maintenance significant items in accordance with MIL-STD-1390, Tasks 201, 301, and 401.

SOW212/- The LORA input data and results of the LORA analysis shall be documented in a specific LORA CDRL Data Item.

SOW213/- The LORA output shall be approved by the Purchaser and shall serve as a baseline for developing Technical Manuals, Sparing recommendations and Training.

{ILSLSAX}

3.8.5.5 Logistic Support Analysis Control Numbers

SOW214/- The Contractor shall assign unique LCNs to each separate item provided under the Contract to facilitate data storage and retrieval, in accordance with MIL-STD-1388-2B.

{ILSLSAX}

SOW215/- The Contractor shall develop these LCNs in consonance with the CI identifiers in the Contractor's CM Plan.

(1) The Contractor's proposed LCN structure shall be provided in the LSAP.

{ILSISUP}

SOW216/- The Contractor shall ensure the compatibility of Subcontractors' LCNs.

3.8.5.6 Source Maintenance and Recoverability Codes

SOW217/- The Contractor shall propose a Source Maintenance and Recoverability (SMR) coding methodology in his LSAP, utilising AR 700-82 as guidance.

{ILSISUP}

SOW218/- For all maintenance significant items, as a minimum, the Contractor's source code shall indicate either Hardware Support Contractor or Purchaser. The maintenance codes shall indicate HL1/2, or HL3 remove/replace and repair and the recoverability code shall indicate Hardware Support Contractor or Purchaser condemnation/discard authority.

SOW219/- SPARE
SOW220/- SPARE

{ILSISUP}
{ILSLSAX}

3.8.5.7 Applicable Documents - Integrated Logistic Support

Document Reference	Title	Application
MIL-STD-1388-2B	Requirements for a Logistics Support Analysis Record	Paragraphs 4.2.2 and subparagraphs, 5.3, and Appendix C
MIL-STD-1388-1A	Logistics Support Analysis	Tasks 102, 103, 301, 401, and 403 as detailed above
MIL-STD-1390	Level of Repair Analysis	Tasks 101, 102, 201, 301, 401
AR 700-82	Joint Regulation Governing the Use and Application of Uniform Source Maintenance and Recoverability Codes	Paragraphs V and VII, Appendices A, B, and C

3.9 Reliability, Availability and Maintainability Program

SOW221/- The Contractor shall ensure that Reliability, Availability and Maintainability (RAM) for the system provided under this Contract can be predicted, measured, tested and updated in accordance with required standards and tasking.

SOW222/- The Contractor shall ensure that his Subcontractors' and suppliers' products are incorporated into the Reliability, Availability, Maintainability Program Plan, tasks and calculations in accordance with MIL-STD-785B, Task 102, and MIL-STD-470, Task 102. The Contractor may propose additional tasks or modifications to tasks within this section and its subparagraphs for Purchaser approval.

SOW223/- The Contractor shall conduct combined RAM Program reviews, and provide combined Reliability, Availability, Maintainability and Safety Program Status Report to, the Purchaser in accordance with. MIL-STD-785B, Task 103, MIL-STD-470, Task 103, and MIL-STD-2165, Task 102. The Contractor shall provide the agenda and minutes of these reviews.

{PMCONFA}
{PMCONFM}

SOW224/- The Contractor shall provide a single Reliability, Availability, and Maintainability Program Plan in accordance with MIL-STD-470, Task 101, MIL-STD-785B, Task 101, and MIL-STD-2165, Task 101. Revisions shall incorporate Purchaser-approved changes, additions and deletions.

{RAMPROP}
{RAMSTAR}

3.9.1 Administrative Logistics Delay Time

SOW225/- The Administrative Logistics Delay Time (ALDT) is provided in the LSC (Paragraph 4.2.6.). The Contractor shall include the ALDT in Availability calculations.

3.9.2 Availability

(1) The Contractor shall initially discuss availability in his RAM Program Plan.

SOW226/- The Contractor shall provide his proposed availability modelling methodology as part of the reliability mathematical modelling submission.

SOW227/- The modelling method shall mathematically determine Operational Availability based on the reliability and maintainability of all equipment parts of the systems and incorporate ALDT as defined by the Purchaser (30 minutes for static sites and 6 hrs. for system management devices).

{RAMPROP}
{RAMSTAR}

SOW228/- The Contractor shall develop the Operational Availability models to the Line Replaceable Unit (LRU) level.

{RAMPROP}
{RAMSTAR}

SOW229/- The Contractor shall provide an availability predictions report, which shall be based on the reliability predictions.

{RAMSTAR}

SOW230/- The Contractor shall revise the availability model to incorporate Purchaser-approved changes, additions, or deletions which evolve during the conduct of the Contract and which affect availability.

3.9.3 Reliability

SOW231/- The Contractor shall establish, conduct and maintain the reliability portion of his RAM Program in accordance with MIL-STD-756B and MIL-STD-785B.

3.9.3.1 Reliability Modelling, Allocation and Prediction Reports

SOW232/- The Contractor shall provide reliability models, allocations and predictions for the CI's provided under this Contract in accordance with MIL-STD-785B, Task 202, and MIL-STD-756B, Tasks 101, 102, 201 and 202. The Contractor shall assume operation conditions and environmental conditions as stated in the PS.

{RAMSTAR}

SOW233/- The Contractor shall prepare, provide and maintain reliability models for basic reliability in accordance with MIL-STD-785B, Task 201, and MIL-STD-756B, Tasks 101 and 102. The provided models shall also meet the following:

a. The basic reliability model is to be based on a defined system configuration, which shall be proposed by the Contractor and agreed upon by the Purchaser and the Contractor;

b. The Contractor shall provide a basic reliability model that shall be developed down to the LRU level for all equipment;

c. All models shall incorporate software reliability down to the software significant item level;

d. The models and the hardware configuration shall be updated for design changes which impact the predicted reliability or apportioned reliability of an end item or any of its components. Following such updating, a resubmission of the required CDRL shall take place.

{RAMSTAR}

SOW234/- The Contractor shall provide reliability allocations, covering basic reliability requirements, in accordance with MIL-STD-785B, Task 202. These allocations shall be developed down to the levels as specified in SOW 233/-

{RAMSTAR}

SOW235/- The Contractor shall provide design reliability predictions in accordance with MIL-STD-785B, Task 203, and MIL-STD-756B, Tasks 201 and 202, utilising methods 2004 and 2005 and based on a defined configuration and associated reliability models.

SOW236/- The Contractor shall propose the source(s) to be used for failure rate data in the RAM Program Plan. The predictions shall be updated for design changes which impact the predicted reliability or apportioned reliability of an end item or any of its components.

{RAMPROP}
{RAMSTAR}

3.9.3.2 Failure Reporting Analysis and Corrective Action System

SOW237/- The Contractor shall establish and implement a Failure Reporting Analysis and Corrective Action System (FRACAS) in accordance with MIL-STD-785B, Task 104.

(1) The FRACAS shall apply to all hardware failures and software faults that occur throughout test and warranty periods. This requirement is to be rationalised with the overall Corrective Action System.

SOW238/- The Contractor shall document FRACAS procedures in the RAM Program Plan.

{RAMPROP}

3.9.3.3 Failure Review Board

SOW239/- The Contractor shall establish a Failure Review Board (FRB) to review failure data, identify trends and propose and implement corrective actions in accordance with MIL-STD-785B, Task 105.

{RAMPROP}

SOW240/- The Contractor shall provide the details of the FRB authority and procedures in the RAM Program Plan.

{RAMPROP}

(1) The Contractor shall perform the failure / fault analysis as delineated below:

SOW241/- The Contractor shall begin performance of a failure/fault analysis within 5 days of the occurrence of an equipment/system malfunction or individual failure.

SOW242/- The Contractor shall finish the analysis within 30 days.

SOW243/- The investigation shall identify causes, mechanisms and potential effects of the failure.

SOW244/- If the suspect item is determined to be not responsible for the failure, analysis shall be extended to additional items and next higher assemblies as required.

SOW245/- The Contractor shall provide failure summary and analysis data as part of the RAM status reports.

{RAMSTAR}

3.9.3.4 Failure Modes, Effects and Criticality Analysis

SOW246/- The Contractor shall perform a Failure Modes, Effects and Criticality Analysis (FMECA) on the VL system hardware and software in accordance with MIL-STD-785B, Task 204, and MIL-STD-1629, Tasks 101, 102 and 103.

SOW247/- The Contractor shall describe his approach to FMECA in the RAM Program Plan.

{RAMPROP}

SOW248/- The Contractor shall perform the FMECA down to the levels as specified in SOW 233/- (paragraph 3.9.3.1).

SOW249/- The Contractor shall document this information in the LSAR.

{ILSLSAX}

SOW250/- The Contractor shall provide a single FMECA/FMEA Report encompassing the Project.

{RAMSTAR}

3.9.3.5 Reliability Critical Items

SOW251/- The Contractor shall identify reliability critical items and their manufacturer or supplier in accordance with MIL-STD-785B Task 208.

SOW252/- The Contractor shall provide the list of critical items and their suppliers as part of the RAM status reports.

{RAMSTAR}

3.9.3.6 Effects of Functional Testing, Storage, Handling, Packaging, Transportation and Maintenance

SOW253/- The Contractor shall determine the effects of functional testing, storage, handling, packaging, transportation and maintenance in accordance with MIL-STD-785B, Task 209.

{RAMSTAR}

SOW254/- The Contractor shall document his proposed procedures and methods of evaluation in the RAM Program Plan.

{RAMPROP}
{RAMSTAR}

SOW255/- The Contractor shall report the results in the RAM status reports and document this information in the LSAR.

{ILSLSAX}

3.9.3.7 Applicable Documents – Availability and Reliability

Document Reference	Title	Application
MIL-STD-470	Maintainability Program Requirements	Tasks 101, 102, 103
MIL-STD-756B	Reliability Modelling and Prediction	Tasks 101, 102, 201, 202, Methods 2004, 2005
MIL-STD-785B	Reliability Program for Systems and Equipment Development and Production	Tasks 101, 102, 103, 104, 105, 201, 202, 203, 204, 208, 209
MIL-STD-1629	Procedures for Performing a Failure Mode Effects and Criticality Analysis	Tasks 101, 102, 103
MIL-STD-2165	Testability Program for Systems and Equipment	Tasks 101, 102

3.9.4 Maintainability

(1) Maintenance levels used are generally known as Organizational Maintenance, Intermediate and Depot Support. These skill levels and the associated tasks are defined in the Project LSC, Part 4, Section 2, Annex G.

SOW256/- The Contractor shall establish and conduct the maintainability portion of the RAM Program in accordance with MIL-STD-470.

SOW257/- The Contractor shall perform data collection, analysis and corrective action in accordance with MIL-STD-470, Task 104 and shall provide the corresponding reports.

{RAMSTAR}

3.9.4.1 Maintainability Modelling, Allocation and Prediction

SOW258/- The Contractor shall provide and update maintainability models, allocations and predictions for VL system equipment in accordance with MIL-STD-470, Tasks 201, 202, and 203. This activity shall also meet the following:

a. The Contractor shall incorporate software support operation tasks within his maintainability models, allocations and predictions.

b. These tasks shall be performed for Software Support Levels (SL) 1, 2 (on-site intervention) for software and to the HL1/2 LRU level for all hardware.

c. The Contractor shall incorporate firmware support operations tasks within his maintainability models, allocations and predictions.

{RAMSTAR}

SOW259/- The Contractor shall develop maintainability design criteria using MIL-STD-470, Task 206, as guidance. The Contractor shall document those criteria in the RAM Program Plan.

{RAMPROP}

SOW260/- The Contractor shall document maintainability data in the LORA.

{ILSLSAX}

3.9.4.2 Maintainability Analysis

SOW261/- The Contractor shall perform a maintainability analysis for the system in accordance with MIL-STD-470 Task 205.

SOW262/- The Contractor shall provide a single maintainability analysis report. The analysis is to address all levels as specified in SOW233/- (paragraph 3.9.3.1).

(1) The analysis shall be performed assuming the following:

a. Operational and support requirements and concepts as defined in the PS and the maintenance concept defined under the LSC;

b. The quantitative maintainability requirements as specified in the PS (Mean Time to Repair (MTTR));

c. Projected Training Program, technical documentation, and Special Tools and Test Equipment (TTE) availability;

d. Standard tools available at the site, as provided by the Purchaser (detailed in the LSC).

{RAMSTAR}

SOW263/- The Contractor shall document the results of the maintainability analysis in the LORA in accordance with MIL-STD-470, Task 207.

{ILSLSAX}

3.9.4.3 Applicable Documents - Maintainability

Document Reference	Title	Application
MIL-STD-470	Maintainability Program Requirements	Tasks 104, 201, 202, 203, 205, 207 Tasks 206 and 301 as guidance

SOW264/- SPARE

SOW265/- SPARE

3.10 System Support

3.10.1 Supply Support

3.10.1.1 Supply Concept

SOW266/- Spares provision for the VL system shall be undertaken in accordance with, but are not limited to the PS requirements.

SOW267/- The Contractor shall provide sufficient HL1/2 spare parts at the site to meet all of the following:

a. Operational Availability requirements, as stated by the Purchaser and agreed by the Contractor;

b. 24 hours/day closed door operation for a continuous period of seven days in times of exercise, crisis or conflict for all sites;

c. The requirement to hold at least one spare of each reliability critical item;

d. The Contractor shall provide at the site adequate consumables (e.g. lamps, fuses batteries, etc.) to allow ninety days of daily operation times.

SOW268/- The Contractor shall describe his proposed spares model and analysis techniques at the LGC and shall formally propose them in the LSAP (as part of the Integrated Support Plan (ISP)). Proposed changes in the model shall be described at Project Management Reviews (PMR) and Purchaser approval shall be requested.

{ILSISUP}
{ILSSAIP}

SOW269/- The Contractor shall provide a Recommended Spare Parts List (RSPL) and a Recommended Consumable Items List (RCIL) for CFE and PFP.

SOW270/- The Contractor shall deliver to the site the complete range of CFE spares, repair parts and consumables required not more than 60 days prior to PSA of each deliverable system, but not later than each PSA.

SOW271/- Upon the conclusion of the warranty period the Contractor shall ensure that spare parts, TTE and consumables positioned at the site are at the agreed range, scale and applicable configuration for that site.

SOW272/- Spare parts required to support test and validation efforts (prior to each PSA), including consumables, shall be the responsibility of the Contractor.

3.10.1.2 Provisioning Conferences

SOW273/- The Contractor shall organise a single Provisioning Conference at his premises at a time and place to be mutually agreed:

a. No less than 90 days prior to the first PSA;

b. As required, when there is a change in equipment that affects the spare parts, repair parts, TTE or consumables requirements.

SOW274/- The Contractor shall provide the agenda and the minutes of the conference. Purchaser representatives will attend the meetings to ensure that proper assumptions, procedures and calculations are being used.

SOW275/- The Contractor shall make available all relevant data and documentation (including LSA documentation and reports, the Technical Data Package (TDP) and the Technical Manuals (TM)), appropriate technical staff with knowledge of the Projects equipment in question and the most recent deliverable configuration of equipment, to enable the Purchaser to assess the Contractor's selection of the spares, repair parts and consumables recommended at each level of support.

{ILSSAIP}
{PMCONFA}
{PMCONFM}

(1) Additional provisioning conferences shall be held when any change in equipment which affects the spares, repair parts, TTE or consumables requirements is proposed by the Contractor and approved by the Purchaser.

3.10.1.3 Equipment Codification

SOW276/- The following Contractor-provided hardware shall be codified by the Contractor in accordance with NATO Manual for Codification, ACodP-1, prior to PSA of the first VL system site:

a. LRUs;

b. Technical consumables;

c. Firmware devices;

d. HL1/2, SL1/2 support equipment including Special TTE.

SOW277/- The Contractor shall provide technical data for identification/codification purposes for all items specified in this Contract and not already codified in the NATO codification system.

SOW278/- The Contractor shall dispatch the data or arrange for the dispatch of the data from Subcontractors, Vendors and Suppliers on request from the codification authorities within 30 days of receipt of the request.

SOW279/- The Contractor shall provide, or arrange to have provided, updating information regarding Purchaser-approved modifications, design and drawing changes to all items subject to codification.

SOW280/- The Contractor shall ensure that his Subcontractors, Vendors and Suppliers comply with these codification requirements.

SOW281/- The Contractor's Subcontractors, Vendors and Suppliers shall ensure the availability of technical data to the codification authority in time for the codification process to be completed by PSA of the first VL system site.

SOW282/- The Contractor shall make provision for details of subcontract numbers or similar identification to enable the codification authority to approach the Subcontractor, vendor and supplier directly.

SOW283/- The Contractor shall provide, as a minimum, true manufacturer name, address, drawing or item part number(s), standards/specifications reference number(s) and item name(s) to the Codification Authority.

SOW284/- The Contractor, Subcontractor, vendor or supplier shall contact the codification authority in his country for any information concerning the NATO codification system.

(1) The Contractor shall request the codification authority to provide him with details of previously allocated NATO Stock Numbers (NSNs) and assigned codification data once codification has occurred. This will allow the Contractor to use that data as required in both technical and supply documentation.

SOW285/- During warranty the Contractor shall utilise NSNs where they are available. If equipment has not been codified, the Contractor shall utilise manufacturers' identification data.

3.10.1.4 Applicable Documents – Supply Support

Document Reference	Title	Application
MIL-STD-1388-2B	Requirements for a Logistics Support Analysis Record	Paras 4, 5 and sub-paras, Appendices A (paragraph 70 and subparagraphs) and E
ACodP-1	Allied Codification Publication 1	Chapter I, Appendix C

3.10.2 Support Equipment

SOW286/- The Contractor shall completely identify in the LSAR all required support equipment, to include standard and special-to-type tools, test equipment, jigs, fixtures, material handling equipment and firmware required to perform all maintenance tasks at HL1/2.

{ILSLSAX}
{ILSSAIP}

SOW287/- The Contractor shall provide a Support Equipment Recommendation Data Report and a TTEL.

{ILSLSAX}
{ILSSAIP}

SOW288/- The Contractor shall provide all required support equipment for HL1/2, other than standard TTE, to the site prior to PSA of each site.

3.10.3 Technical Documentation

SOW289/- The Contractor shall provide technical documentation which consists of four functional groupings:

a. Technical Data Package;

b. Technical Manuals;

c. Training Documentation;

d. Logistic Support Analysis Record.

SOW290/- All Contractor-developed technical documentation shall be in the English (United Kingdom) language. Contractor-provided COTS manuals may be in other variants of the English language.

{ILSISUP}
{ILSTM}
{ILSCOTS}

3.10.3.1 Technical Manuals

SOW291/- The Contractor shall develop Technical Manuals (TM) for the use and operation of all equipment supplied under the Contract.

{ILSTM}
{ILSLSAX}

SOW292/- The Contractor shall develop Technical Manuals (TM) for:

a. The use, operation, maintenance and system administration / management of all equipment supplied under the Contract at HL1/HL2,

b. The use, operation, maintenance and system administration / management of the Software (SL1/2) supplied under Contract,

c. The use and maintenance of Support Equipment supplied under Contract,

(1) If the contents of the COTS manuals do not contain the required information, the Contractor shall develop COTS TM supplements in English (United Kingdom) language and integrate them into the TMs.

SOW293/- The Contractor shall provide training documentation in Microsoft Office (2010) electronic formats or their printouts to the PDF format files.

3.10.3.2 Applicable Documents – Technical Documentation

Document Reference	Title	Application
AECMA-PSC-85-16598	Guide for the Preparation of Aircraft Maintenance Documentation in the International Aerospace Maintenance Language	See NACMA-DI-ILSTM
ASD S1000D	International Specification for Technical Publications Utilizing a Common Source Database	See NACMA-DI-ILSTM
MIL-STD-498	Software Development and Documentation	Paras 5.12.3 and 5.13.6 and sub-paras
MIL-Q-87270	Quality Assurance Program: Interactive Electronic Technical Manuals and Associated Technical Information.	See NACMA-DI-ILSTMVP

3.10.3.3 ILS Data Validation and Verification

SOW294/- No later than 60 days prior to the first training conduct and no later than 90 days prior to PSA (whichever comes first), the Contractor shall conduct, together with the Purchaser, an overall concurrent Validation and Verification of all ILS data.

(1) This concurrent Validation and Verification shall cover, as a first step, LORA and FMECA data delivered as detailed in Sections 3.9.4.1 of this SOW and shall demonstrate maintainability of the system.

(2) Once this first step has been completed and approved by the Purchaser, the Technical Manuals and Training Material shall be jointly Validated and Verified.

SOW295/- After the TM final review, the Contractor shall make any Purchaser-required changes and shall publish the approved documentation.

{ILSTM}

3.10.3.4 Applicable Documents – Logistics Support Analysis

Document Reference	Title	Application
MIL-STD-1388-2B	Requirements for a Logistic Support Analysis Record	Paras 4.2 and 5 and sub-paras

SOW296/- SPARE
SOW297/- SPARE
SOW298/- SPARE

3.10.4 Training and Training Support

3.10.4.1 General

SOW299/- The Contractor shall develop, organise and conduct training courses to enable the Purchaser to establish the maintainability of the VL system and the operation and maintenance of its support equipment in accordance with the Logistic Support Concept (LSC).

SOW300/- The Contractor shall carry out appropriate courses to cover the following requirements:

a. Initial training for one maintainer crew of site personnel for each VL system, who will maintain the site's system; and;

b. Conduct one course for up to 5 persons (to be allocated by the Purchaser) to provide the Purchaser with the skills necessary to conduct relevant system tests.

(1) Courses listed above shall also meet the requirements delineated below:

SOW301/- Shall be conducted at each VL system site location, to be agreed between the Contractor and the Purchaser with THN coordination;

SOW302/- Shall be provided to site personnel in batches, thereby ensuring a cost effective approach (e.g. there will not be one course per site for the site maintainers).

SOW303/- The Contractor shall recommend in the Training Plan the mode(s) of training (e.g. formal classroom, individual computer-based, on-the-job, commercial or

a combination) and the rationale for those recommendations in accordance with subtask 401.2.4 of MIL-STD-1388-1. The Contractor shall identify with the THN and the Purchaser during the Site Survey; any additional Training Requirements and document these in the Site Survey Report. The and the Contractor shall also document the training requirements results in the LSAR.

{ILSTRAP}

{ILSLSAX}

3.10.4.2 Plans

SOW304/- The Contractor shall develop and provide a single Training Plan covering the overall Training Program. This Plan shall describe each course in detail.

{ILSTRAP}

3.10.4.3 Training Courses

SOW305/- The Contractor shall conduct courses at the times and in the locations approved by the Purchaser in the Training Plan.

{ILSTRAP}

(1) Course instruction shall not exceed six hours of instruction per day and five days per week.

{ILSTRAP}

(2) There shall be no instruction on official holidays of the nation where the training concerned takes place and on official holidays of the organisation where the training concerned takes place.

{ILSTRAP}

(3) The Contractor shall recommend in his Training Plan the number of trainees for each course up to a maximum of twelve for classroom training and up to a maximum of six for hands-on training.

{ILSTRAP}

(4) The Contractor shall accept that the Purchaser can nominate one member of the Project management staff to attend each course in a monitoring role; such attendees will be additional to the planned course size.

SOW306/- The Contractor shall include appropriate hands-on training in all courses, using representative installations or equipment for this purpose.

3.10.4.3.1 Initial Training for Site Personnel

SOW307/- The Contractor shall complete the courses required for initial training not earlier than 60 days before the PSA of the first of the sites covered by the course iteration.

(1) If initial training consists of different modules, the time gap between these modules shall be minimised.

{ILSTRAP}

{ILSTRCR}
{PMMIPS}

3.10.4.4 Training Documentation and Equipment

(1) The Contractor shall minimise the use of classified data in training documentation.

{ILSTRMT}

SOW308/- The Contractor shall provide training documentation in Microsoft Office (2010) electronic format.

{ILSTRMT}

SOW309/- The Contractor shall develop and provide all training documentation to the Purchaser for review and approval no later than ninety days before the planned starting date of each individual course. The Contractor shall provide updates whenever the course material is changed.

SOW310/- The Contractor shall provide formal notification (to the Purchaser) that a course will commence as planned, at least 60 days beforehand.

SOW311/- The Contractor shall make provision for a course walkthrough, for at least one iteration of each course. Each course walkthrough shall also meet the following:

a. The course walkthrough shall address all issues concerned with the conduct of the course.

b. The course walkthrough shall take place no later than 30 days before the planned starting date of that course.

c. Upon successful completion of the walkthrough, the Purchaser will confirm that the course can commence as planned.

{ILSTRMT}

SOW312/- The Contractor shall develop and provide in the Training Plan a list of training equipment required for each course.

{ILSTRAP}

SOW313/- The Contractor shall make available for each course all required training equipment.

{ILSTRAP}

SOW314/- The Contractor shall provide Purchaser approved course material prior to or during each course, for each trainee, which they can take away for future reference. A final version shall be delivered to the Purchaser.

{ILSTRMT}

3.10.4.5 Course Administration

SOW315/- The Contractor shall provide the Purchaser with completion reports for each applicable course.

SOW316/- The Contractor shall provide each trainee with a certificate of training for each course successfully completed.

{ILSTRCR}

3.10.4.6 Language

SOW317/- The Contractor shall prepare all developed training documentation in the English language (United Kingdom).

SOW318/- All other training documentation shall use the English language.

SOW319/- The Contractor shall conduct all courses in the English language.

3.10.4.7 Applicable Documents – Training

Document Reference	Title	Application
STANAG 6001	Language Proficiency Levels	See NACMA-DI-ILSTRAP
MIL-STD-1379	Military Training Programs	See NACMA-DI-ILSTRCR
MIL-STD-1388-1	Logistics Support Analysis	Task 401.2.4

SOW320/- SPARE

3.10.5 Packaging, Handling, Storage and Transportation

3.10.5.1 Facilities

SOW321/- The Contractor shall provide the Purchaser with details of on-site spares storage requirements.

3.10.5.2 Packaging, Handling, Storage, and Transportation Requirements

SOW322/- The Contractor shall establish and maintain a Packaging, Handling, Storage and Transportation (PHST) Program.

SOW323/- The Contractor shall identify all VL system items which will be stored at the site or at a Contractor's repair facility and/or which may need transportation between the site and the Contractor's or vendor's repair facility.

{ILSSAIP}

(1) For these items, the Contractor shall identify the PHST requirements for data elements listed in DD Form 1949-3 and shall enter this PHST data into the LSAR. The Contractor shall provide a PHST report based on LSAR data.

{ILSLSAX}

{ILSSAIP}

{ILSPACP}

(2) The Contractor shall give consideration to special handling requirements and other hazards associated with the international transportation of Project's items.

{ILSPACP}

SOW324/- Repairable items and LRUs shall be packaged to Commercial Standards.

{ILSPACP}
{ILSSAIP}

SOW325/- The Contractor shall provide any special packing instructions required for shipment of repairable items.

{ILSPACP}
{ILSSAIP}

SOW326/- When fully packed, packages or containers shall be designed to ensure a maximum four man lift.

{ILSPACP}
{ILSSAIP}

SOW327/- The Contractor shall pack all consumables so that each item is readily identifiable for use in the system, linking it to the major assembly or LRU.

SOW328/- The Contractor shall ensure each item shall be marked with its original equipment Part Number and Description and a list of such consumables shall be supplied to each site and to the Purchaser.

{ILSPACP}
{ILSSAIP}

3.10.5.3 Packaging, Handling, Storage, and Transportation Support Prior To Provisional Site Acceptance

SOW329/- Prior to delivery of each VL system to the site, the Contractor shall be responsible for packaging all spares and repair parts to be transported with it.

SOW330/- Unserviceable items returned to the Contractor shall be packed by the Contractor in the packaging previously used for the replacement, serviceable item.

SOW331/- Transportation of these items to and from the site shall be the Contractor's responsibility.

3.10.5.4 Applicable Documents - Packaging, Handling, Storage, and Transportation

Document Reference	Title	Application
STANAG 4280	NATO Levels of Requirements for Packaging	Paragraph 1-4, 7, Annex A and B
STANAG 4329	NATO Standard Bar-code Symbology	All

SOW332/- SPARE
SOW333/- SPARE

3.11 PROJECT MANAGEMENT

3.11.1 Project Management Plan

SOW334/- The Contractor shall develop a Project Management Plan (PMP) for the Contractor's management of the Project which will apply effective management techniques and controls.

(1) The PMP shall address the relationship between elements in the Contractor's plans and factors that could impact the Project but that are not under the direct control of the Contractor.

(2) The PMP shall equally address any Subcontractors in all sections of the PMP, as well as the Contractor's management of Subcontractors.

(3) The PMP shall contain high level planning for unexercised options.

{PMMANP}

3.11.2 Project Management Process

SOW335/- All aspects of the Project Management process shall be documented in the PMP.

{PMMANP}

3.11.3 Project Management Organisation

SOW336/- The Contractor shall appoint a single Project Manager (PM) for the Project who shall be solely responsible for the overall control and coordination of the Contractor's activities. The PM shall be the Project Management focal point.

SOW337/- The Contractor shall appoint a single Technical Manager (TM) for the Project who shall be solely responsible for the overall control and coordination of the Contractor's technical activities.

SOW338/- If the Contractor has a number of Subcontractors, he shall appoint a Subcontracts Manager (SCM) who has authority and accountability for the performance of Subcontractors. The SCM shall be experienced in Project Management. The Contractor shall provide a Subcontracts Management Plan as an integrated part of the PMP.

SOW339/- The Contractor shall provide a Project organisation structure in the PMP. The organisation shall detail all lines of responsibility, both internal and external to the Project team.

(1) The following are identified as Key personnel: Project Manager, Deputy Project Manager, Technical Manager, Contracts Manager, and Test Manager & Site Installation Manager.

3.11.4 Risk Management

SOW340/- The Contractor shall plan, implement and maintain an effective Risk Management program for the duration of the Contract which shall ensure that risks are identified in a timely manner and handled proactively. The Risk Management program shall encompass risk planning (risk assessment and risk handling) and risk abatement (risk reduction efforts, risk monitoring and risk reassessment).

SOW341/- The Contractor shall provide a Risk Management Plan (RMP) as part of their PMP, describing the process he will use for the Project. Amendments to the Contractor's RMP after Contract Award shall be agreed by the Purchaser as updates to the PMP CDRL.

SOW342/- The Contractor's Risk Management process shall support the conduct of the following activities:

a. Identification - The identification of risks associated with each the element of the Project.

b. Analysis - The determination of risk cause and consequence - normally a qualitative approach.

c. Evaluation - The evaluation of each risk's likelihood of occurrence (Probability) and likely consequences (Impact). The Impact of each risk is to be assessed as a measure of its likely effect on the Project schedule (Time), budget (Cost) and operational capability (Performance).

d. Mitigation - The definition of actions aimed at mitigating the Probability and Impact associated with each risk. Such actions could consist of avoidance, control of risk areas, transference to more suitable areas, or simply assuming the risk and monitoring its status.

e. Monitoring and Review - The tracking of the status (Probability and Impact) of each risk over time (including Risk Trend Analysis), and the evaluation of the effectiveness of mitigation actions.

SOW343/- The Contractor shall maintain a Risk Register, detailing all the Project Risks, in an electronic database. Ideally, the Risk Register should be maintained within a specialist Risk Management software application that supports the conduct of the functions noted above.

SOW344/- Risk Analysis shall be presented as an element of the PMRs. The purpose of risk presentation at these meetings shall be to review the Probability and Impact scores of each risk and to assess the progress of associated

mitigation actions. A record of risk related actions; discussion and decisions shall be captured and presented to the Purchaser in the PMR minutes.

SOW345/- The Contractor shall also present a risk report as part of the Contractor's Progress, Status and Man-Month Effort Report CDRL. The report should detail the recent, relevant issues and activities associated with each risk, offering the results of Risk Trend Analysis and discussing potential effects on the Project Schedule.

SOW346/- Project schedule analysis shall be conducted to identify, as early as possible, potential slippages to key Project milestone dates. This analysis shall be used to inform the production of formal Project updates. The schedule analysis shall be formally presented to the Contractor at the PMRs and in the PPBCPR CDRL.

SOW347/- The Contractor shall ensure that risks evaluated as high and of a critical nature are communicated to the Purchaser at the earliest opportunity to avoid incurring any delay related to awaiting PMR or CDRL delivery dates.

{PMCONFM}
{PPBCPR}
{PMMANP}

3.11.5 Master Integrated Project Schedule

SOW348/- The Contractor shall prepare and maintain a Master Integrated Project Schedule (MIPS) of events using Automated Data Processing (ADP) based tools. Whatever tool is used by the Contractor in generating the MIPS shall allow export of data to Microsoft Project.

(1) All lower level schedules shall use the same tool and shall be linked to the MIPS.

(2) The MIPS shall be structured so as to fully align with the CWBS.

(3) The MIPS shall contain all major milestones and all deliverables and shall include Contractor and Subcontractor activities, Purchaser activities and activities on the part of all other contributing organisations whose participation is necessary for the successful completion of the Project.

(4) The status of the MIPS shall be briefed during the PMRs. The Contractor shall also provide to the Purchaser all relevant data and updates so that the Purchaser can perform an independent analysis.

(5) The MIPS shall contain high level schedules for all options until they are confirmed or discarded.

{PMMIPS}
{PPBCWBS}

3.11.6 Contract Work Breakdown Structure

SOW349/- The Contractor shall provide a CWBS based upon the CWBS supplied in Annex C of this SOW and in accordance with MIL-HDBK-881.

SOW350/- The Contractor shall maintain and extend the CWBS to lower levels during the performance of the Contract as additional system definition is accomplished and as options are exercised.

SOW351/- The Contractor shall use the CWBS as the primary framework for Contract planning, budgeting, and reporting to the Purchaser. The CWBS shall display and define the products to be developed and produced (deliverables) and relate the elements of work to each other and to the end product. The CWBS shall represent non-overlapping subdivisions of all products produced or tasks performed by the Contractor and all Subcontractors. At each level the CWBS elements shall be mutually exclusive and totally exhaustive.

SOW352/- The Contractor shall identify within the CWBS all subcontracted elements or tasks, and shall ensure that Subcontractors' Work Breakdown Structure (SWBS) permit the Contractor to fulfil CWBS requirements, i.e. the CWBS for the entire Project must be complete, consistent and seamless regardless of whether an element is performed by the Contractor or a Subcontractor.

{PPBCWBS}

3.11.7 Project Contractor’s Progress, Status and Man-Month Effort Report

SOW353/- The Contractor shall prepare a Contractor's Progress, Status and Man-Month Effort Report as detailed in this SOW.

3.11.8 Project Management Reviews

SOW354/- The Contractor shall conduct a Project Management Review (PMR) every two months with the first PMR being held at Contract Award plus 40 days.

SOW355/- The Contractor shall conduct Project Management Reviews every month during the implementation phase of the Project.

(1) The key objectives of the PMR shall be to provide the Purchaser with an overview on Project status, to ensure that all Project activities are reviewed and understood by both parties and to support the resolution of any issues identified that cannot be resolved at technical reviews and/or at the working level.

(2) Formal PMR presentations by the Contractor shall address all aspects of Project progress as specified in this SOW. Each PMR presentation shall:

a. Ensure that the Purchaser is made fully aware of progress in the period in accomplishing the various tasks relating to this Statement of Work which are applicable to the period of the review, against forecasts made at previous reviews and against the baseline schedule and metrics.

b. Provide a forecast of activities until the next PMR and an update on progress to completion.

c. Summarise and highlight key issues, predicted problems and areas of variance, areas of non-performance and slippage against schedule, etc. These shall be addressed through a narrative analysis of cause, effect and proposed or accomplished corrective/mitigation action required including changes in strategy and planning.

d. Identify key risks, these shall also be addressed through a narrative analysis of cause, effect and proposed or accomplished corrective/mitigation/fallback actions.

e. Support a review of corrective actions agreed in previous reviews.

(3) The first PMR shall be used as the foundation for later PMRs, consequently at the first PMR the Contractor shall, in addition to the requirements given above, provide an additional briefing based on the below, SOW356/-.

SOW356/- The Contractor shall ensure that the Purchaser is presented with a clear view of the Project management strategy to be employed, the Performance Management Baseline (PMB) including baseline planning and a view of how the Contractor will manage Project performance.

(4) The briefing shall take the form of a presentation by the Contractor Project management team addressing the following aspects of the Project:

a. Project Management Strategy overview.

b. The CWBS.

c. The Project OBS.

d. The baseline MIPS.

e. The performance metrics to be applied including, if performed, Earned Value Management.

f. The initial Project risks identified.

(5) The PMRs may be held jointly with design and technical reviews. Additional PMRs may be held upon mutual agreement. PMRs shall be hosted by the Contractor at his facility, unless otherwise requested by the Purchaser.

SOW357/- The Contractor shall, if the review requires it, ensure appropriate participation including that of Subcontractors, Vendors and Suppliers.

(6) The Purchaser or other contributing organisations may also provide presentations relevant to their activities on the Project.

SOW358/- The Contractor shall provide such information and items necessary to confirm that the accomplishments associated with the review have been satisfied.

SOW359/- The Contractor shall deliver to the Purchaser a soft copy of all material to be presented at the PMR 7 days prior to the review.

SOW360/- The Contractor shall provide administrative support for the reviews to include:

a. Agendas.

b. Minutes which document the proceedings including key points, decisions and issues with associated rationale; open and unresolved items with their closure requirements and responsibilities.

c. Administrative resources such as meeting rooms, materials, security and clerical support.

SOW361/- The Contractor shall deliver to the Purchaser a complete soft copy of all material presented at the review including any agreed changes or additions. This shall be supplied in soft copy upon completion of the review and no later than 7 days following the review.

{PMCONFA}
{PMCONFM}
{PMMANP}

3.11.9 Technical Interchange Meetings

SOW362/- The Contractor shall support Technical Interchange Meetings (TIM) to aid resolution of technical issues and to help maintain visibility of the Project technical status.

(1) A TIM shall be held on an as required basis with no more than eight meetings in any one year unless otherwise agreed.

(2) Both Purchaser and Contractor can initiate a request for a TIM via their respective Project Managers.

SOW363/- The Contractor shall ensure appropriate participation including that of Subcontractors, Vendors and Suppliers.

(3) Meetings shall be held at either the Contractor's site or the Purchaser's site as agreed.

(4) The Contractor shall host the meeting and provide administrative support to include:

a. Agendas at least 5 days in advance of the meeting.

b. Minutes which document the proceedings including key points, decisions and issues with associated rationale; open and unresolved items with their closure requirements and responsibilities.

c. Administrative resources such as meeting rooms, materials, security, and clerical support.

{PMCONFA}
{PMCONFM}

3.12 QUALITY ASSURANCE

3.12.1 Quality Assurance Program

SOW364/- The Contractor shall establish, document and maintain a Quality Assurance (QA) Program. The QA Program shall assure the quality of all deliverable and non-deliverable items throughout the duration of the Contract and that all activities are performed in accordance with the requirements of the SOW.

(1) The Contractor shall recognise the application of STANAG 4107 in the implementation of this Project.

SOW365/- The Purchaser shall periodically review the QA Program and audit it for adequacy, compliance and effectiveness.

SOW366/- The Contractor shall provide all necessary assistance to the Purchaser QA Representative (QAR) for review and audit of the QA Program in the Contractor's and Subcontractors' facilities in accordance with Allied Quality Assurance Publications AQAP-2110 and AQAP-2210. AQAP-2009 will be used by the Purchaser as a guide in the interpretation of AQAP-2110 when evaluating the Contractor's QA Program.

(2) The QA Program shall ensure that procedures are developed, documented, implemented and maintained to control the quality of development of all deliverables.

SOW367/- The QA Program shall be in accordance with the provisions of AQAP-2110 and its referenced International Standards Organisation (ISO) publications.

SOW368/- Quality Requirements in accordance with AQAP-2210 and Software Development Requirements in accordance with MIL-STD-498 shall be applied for any software development effort undertaken on this Contract and for all cases that involve non-deliverable software developed or employed; software maintenance; COTS or developed software; and development of the software element of firmware, as stated in AQAP-2210, under paragraph 1.2, Applicability.

(3) AQAP-2110 and AQAP-2210 may be tailored by the Contractor for COTS hardware. This tailoring by the Contractor shall be subject to approval by the Purchaser.

SOW369/- The QA Program for IETMs and associated technical information shall be in accordance with MIL-Q-87270.

(4) The QA Program shall apply to all hardware, software, documentation, services and supplies that are designed, developed, acquired, maintained or used, including deliverable and non-deliverable items.

3.12.2 Organisation and Personnel

SOW370/- The Contractor shall establish and maintain an effective QA organisation to implement the QA Program and manage the QA functions. It shall be managed independently of the Program Management.

(1) QA personnel shall have sufficient responsibility, authority, organisational freedom and organisational independence to review and evaluate activities, identify problems and initiate or recommend corrective actions. In no case shall the QA personnel managing or performing QA functions be the same personnel responsible for performing other tasks that are reviewed by QA. QA personnel shall have specific documented definitions of their assigned duties.

SOW371/- The Contractor shall appoint a QA Manager who shall be responsible for the establishment, implementation and effectiveness of the QA Program and ensure that it conforms to the requirements of AQAP 2110 and ISO 9001:2000.

(2) Quality management personnel shall be of sufficient number and have sufficient resources to adequately and effectively monitor and control the QA Program. Quality Management personnel shall have the requisite knowledge, skills, ability, practical experience and training for working with, and in accordance with the applicable NATO AQAP's and ISO standards.

3.12.3 Quality Assurance Plan

SOW372/- The Contractor shall provide a QA Plan which documents the QA Program.

(1) All Contractor procedures referenced in the QA Plan shall be provided with the QA Plan or shall be made available to the Purchaser for review and approval upon delivery of the QA Plan.

(2) The QA Plan shall cover all aspects of the QA Program for monitoring and control such as Hardware, Software, Firmware, Test, Installation and Check-Out, Documentation.

(3) The QA Plan shall conform to the requirements of AQAP-2105.

SOW373/- The QA Plan and all related QA procedures shall be subject to Purchaser Quality Assurance Representative (QAR) approval.

{QMBQAP}

3.12.4 Corrective Action System

SOW374/- The Contractor shall establish and implement a Corrective Action System to document and track until closure all failures, faults and problems applying to the QA Program. This Corrective Action System shall be documented in the QA Plan.

3.12.5 Testing

(1) The QA organisation shall verify that all tests, including informal and formal, are adequately planned, designed and executed in accordance with the approved Contractor TEMP. A Contractor QAR shall be present at all formal test activities.

3.12.6 Subcontractors

(1) The Purchaser reserves the right to perform reviews and audits at Subcontractor facilities. Such reviews and audits shall not be used by the Contractor as evidence of effective control of the Subcontractor's quality. The Contractor shall conduct periodic QA audits of the Subcontractors.

3.12.7 Support Tools

SOW375/- The Contractor shall make all support tools available for demonstration to the Purchaser QAR or his representative, upon request.

3.13 CONTRACT DATA MANAGEMENT

SOW376/- The Contractor shall manage Contract data using a Contract Data Management System (CDMS).

3.13.1 Contract Data Management Authority

SOW377/- The Contractor shall identify a single Contract Data Manager to ensure that all Contract data items are prepared in accordance with the instructions of the appropriate CDRL item.

(1) Deviation from the Functional Baseline will be approved at Contract signature and maintained by the Purchaser.

(2) Deviation from the Allocated Baseline is not part of the requirements of this Program.

3.13.2 Contract Data Requirements List Control

SOW378/- The Contractor shall review Contract data submitted by all suppliers and Subcontractors, and shall ensure that Contract data meets the requirements of any relevant CDRL and DID (Annexes A and B to Part 4, Section 1 of the SOW).

3.13.3 Contract Data Accession List

SOW379/- The Contractor shall prepare a list of internally generated data used by the Contractor to develop, test and manage the program.

(1) The format and content of these data shall be as prepared by the Contractor to document his compliance with the SOW task requirements.

SOW380/- The Contractor shall make available the Contract data accession list and any data at the request of the Purchaser.

3.13.4 Contract Data Management Status Accounting

SOW381/- The Contractor shall report on the status of the deliverable Contract data as part of each PMR.

3.14 ACCEPTANCE AND PROJECT COMPLETION

3.14.1 Acceptance Planning

SOW382/- The Contractor shall provide an Acceptance Plan addressing all Contract deliverables. The plan shall address unexercised options.

{PMACCP}

3.14.1 Site Acceptance

(1) A meeting shall be held for each site following completion of testing for that site.

(2) The Purchaser will confirm acceptance subject to assessment of any issues and actions identified.

3.14.1.1 Provisional Site Acceptance (PSA)

SOW383/- PSA Meetings shall be held for each site following completion of Site Acceptance Testing (SAT) for that site.

(1) Meetings shall be held at the respective sites unless otherwise agreed by the Purchaser.

(2) PSA shall only be authorised if all the appropriate work defined within the Project PS and SOW such as inspections, tests, CDRL deliveries, actions are complete.

3.14.1.2 Final System Acceptance (FSyA)

(1) FSyA for each site shall occur upon completion of all PSA activities at each site and completion of System Wide Load and Speciality Tests. FSyA is the start date for all warranties and marks the Project's transitions into the in-service phase.

SOW384/- FSyA shall be agreed as an aggregate of all PSA and System Wide Test activities..

(2) Meetings shall be held at the respective sites unless otherwise agreed by the Purchaser.

SOW385/- A meeting shall be held upon delivery of the FSyA to review all activity between the PSA and FSyA, particularly in respect of any remaining issues. This meeting shall support transition to the support phase.

3.14.2 Project Completion

SOW386/- Project Completion planning shall be captured in the MIPS.

(1) Project Completion excludes those responsibilities directly related to FSyA (including Warranties).

(2) A Project Completion meeting shall be held in conjunction with the last site PSA Meeting.

SOW387/- The meeting shall take the form of a presentation to the Purchaser by the Contractor providing confirmation that all contractual obligations have been met, all deliverables are in place, identifying where evidence to support this is located and confirming that there are no outstanding issues, actions, deliverables or evidence.

SOW388/- Confirmation of Completion shall be provided by the Purchaser upon meeting conclusion. If issues are identified that preclude authorisation of completion, an action plan shall be agreed to address them. Confirmation by the Contractor and agreement by the Purchaser that the action plan has been fully addressed will then allow Project completion.

NATO Communications and Information Agency

RFQ-13639-ACCS

Statement of Work

for the Implementation of the

Enhancements to
NATO Integrated Air and Missile Defence System
Command and Control Communications

Voice Loop Communications

Contract Data Requirements List

NCI Agency, Book II, Part 4, Section 1, Annex A

Rev. -, 30.05.2013

This Page Intentionally Left Blank.

REVISION SHEET

ECP No.	Revision	Date
INITIAL RELEASE	-	30/May/2013

This Page Intentionally Left Blank.

TABLE OF CONTENTS

1. SCOPE 1
2. GENERAL INSTRUCTIONS 1
3. EXPLANATION OF CONTRACT DATA REQUIREMENTS LIST (CDRL) DATA ITEMS 5
4. SAMPLE OF CDRL DATA ITEM FORM 7
5. CDRL DATA ITEM NAMES 8
6. CDRL DATA ITEM FORMS 11

This Page Intentionally Left Blank

1. SCOPE

(1) This Annex is structured as follows:

a. Section 2 contains general instructions to the Contractor for the production and management of deliverable data items;

b. Section 3 is an explanation of the fields in the CDRL Data Item forms, which detail the requirements of each deliverable data item;

c. Section 4 is an example of a CDRL Data Item form;

d. Section 5 contains a table listing every CDRL Data item that shall be delivered under this contract;

e. Section 6 contains a set of CDRL Data Item forms, one form for each required data item.

(2) Annex B of the SOW contains the Data Item Descriptions (DIDs). Each DID is a standard description of the content required in the CDRL Data Item to which it relates.

2. GENERAL INSTRUCTIONS

(1) This Contract Data Requirements List (CDRL) Annex contains a complete list of the data deliverables required by the Statement of Work (SOW). Instructions for the preparation of data delivered under this contract are in block 8; "Preparation Instructions", of the (Annex B) Data Item Description (DID) referenced by, and if necessary tailored by, the appropriate CDRL Data Item form.

(2) The Contractor may also choose to use Contractor-internal processes for the generation of CDRL Data Items, which then may deviate from the requirements of the DIDs as long as the content required by the DID is provided. In this case, the Contractor shall demonstrate by means of a cross-reference matrix, delivered with the CDRL Data Item that the relevant requirements of the referenced DID have been satisfied.

(3) Unless otherwise specified, the effective date for data delivery shall be as specified in the CDRL Data Item form.

(4) Unless otherwise specified, the submittal date stated on the CDRL Data Item form is the required date of arrival of the data at the offices specified in Block 17 of the form. Distribution to other specified recipients of the data shall be made on the same date. Delivery dates falling on non-working days (Saturday, Sunday, Purchaser legal holidays) shall be construed to mean the first calendar day following such non-working days.

(5) All reports and other data submittals under this contract shall be prepared in the format and number of copies specified in Block 17 of the CDRL Data Item form. Where specified, deliveries may be made in Contractor Format which shall be subject to Purchaser approval.

(6) Each Transmittal letter shall contain the CDRL sequence number, version number, title, date of transmittal and Contractor's transmittal letter number, and shall include a list showing addressees, distribution made, number of copies distributed and in which format (optical disk and CALS standards, paper, etc.). The content and format of the information provided in the Subject of the Transmittal letters shall be subject to Purchaser approval.

(7) The transmittal letters shall identify the type of submissions (e.g. draft, first submission, revised/update submission, subsequent submission, final, change pages, etc.).

(8) All correspondence relating to data items shall reference the contract CDRL Data Item Acronym.

(9) All CDRL Data Items shall be subject to Purchaser’s approval in accordance with Article 22 of NCI Agency Contract General Provisions (GPs), and will be responded to in writing. Such response will be issued by the Purchaser's Contracting Authority. Data will be responded to within 45 calendar days after Purchaser’s receipt unless otherwise specified in the Block 16 of

the CDRL Data Item form. The Purchaser will report the Purchaser's receipt date to the Contractor by returning a signed data transmittal letter for both unclassified and classified data.

(10) The following items are exempt from the 45 calendar day approval cycle:

a. Engineering Change Proposals (ECPs)

b. Deviations and Waivers

(11) The Purchaser reserves the right to approve, approve with comments or reject any and all CDRL Data Item submittals, regardless of whether they are specified for approval in Block 14. In addition, the Purchaser reserves the right to declare its willingness to approve CDRL Data Item submittals upon resolution of comments to the satisfaction of the Purchaser. In the case of such declarations of willingness, the Purchaser review of the resubmitted CDRL Data Item will normally be limited to those portions affected by comments that were identified in the letter of declaration, or the resolution of those comments or otherwise changed.

(12) Data items which have been approved with comments or rejected shall be revised to address/include the Purchaser's comments and shall be resubmitted for approval, within 45 calendar days. These re-submittals shall not be regarded as subsequent submittals as specified in Block 10 of the CDRL Data Item form.

(13) When the Purchaser provides comment in a formatted Excel spread sheet, the Contractor shall provide a response to each comment on the spread sheet and submit it to the Purchaser within 45 days. All Purchasers' comments shall be addressed by the Contractor. The Contractor's response will be reviewed within 45 days.

(14) The Contractor shall take care not to unnecessarily duplicate data. Potential or actual instances of unnecessary duplication shall be identified to the Purchaser. The Contractor is encouraged to recommend deletions, additions, substitutions, consolidations and use of other formats for the data, when such actions will aid the Purchaser in obtaining the minimum essential data in a timely and cost effective manner.

(15) Data that is dependent on events which may or may not occur during the performance of the contract shall be submitted on an "as required" basis. A list of potential events would be described in Block 16 of the CDRL Data Item form.

(16) Requirements for periodic revisions of data, where no changes have occurred since the dates of last submission, may be satisfied by a letter from the Contractor stating that "no changes have occurred since the last submission". In such cases, the Contractor will identify the data in question, the reporting period, and the data transmittal letter number and the date of the last previous submittal.

(17) Questions regarding preparation and contents of CDRL Data Item forms may be directed to the Purchaser Contracting Officer.

(18) Revisions. The CDRL Data Item specifies the requirement for revisions in Block 9, Frequency, for certain data items. The Contractor shall provide revisions for such Data Items within 45 days of significant changes to the data within that data item. Such data item changes may be due to changes in planning or schedule, progress of development, contract changes (e.g. exercise of options, incorporation of ECPs), etc. The revised text of the data item shall be marked with balloons, the added text shall be coloured, or double underlined and deleted text shall be marked with strike through. Marking is not required for tool generated data items if the tool does not provide this facility.

(19) The Contractor shall submit to the Purchaser for approval a numbering scheme for draft/revised/subsequent/update version of the CDRL Data Items using a chronological and alphabetical system.

(20) General Instructions for the Submission of CDRL Data Items.

a. Automated Techniques. Use of automated techniques is encouraged. The CDRL Data Item form specifies:

i. Whether the data are to be delivered on paper or electronic media;

ii. Any requirements on the electronic representation (compatibility with a specified word processor or other support software);

iii. Whether the data may be delivered in developer format rather than in the format specified herein;

iv. Whether the data may reside in a Computer-Aided Software Engineering (CASE) or other automated tool rather than in the form of a traditional document.

b. The term "document" in the CDRL Data items and DIDs means a collection of data regardless of its medium and the term “page” means a paper page or a Window on a VDU.

c. Paper Page Size. Traditional documents shall be on A4 size paper except for tables, etc., which may be on appropriate sized metric paper.

d. Alternate Presentation Styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required can be made more readable using these styles.

e. Title Page or Identifier. When data are delivered in the form of a traditional document or electronic compatible format, the document shall include a title page containing, as applicable; document number; volume number; version/revision indicator; bar-coded identifier in accordance with the Project SOW (Bar-coding of Technical Documents), security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the system, subsystem, or item to which the document applies; contract number; CDRL Data Item Acronyms organisation for which the document has been prepared; name and address of the preparing organisation; and distribution statement. For data delivered in an alternative form, this information shall be included on external and internal labels or by equivalent identification methods:

i. Document number;

ii. Volume number;

iii. Version/revision indicator;

iv. Bar-coded identifier in accordance with the Project SOW (Bar-coding of Technical Documents);

v. Security markings or other restrictions on the handling of the document;

vi. Document Date;

vii. Document title;

viii. Name, abbreviation, and any other identifier for the system, subsystem, or item to which the document applies;

ix. Contract number;

x. CDRL Data Item for which the document has been prepared;

xi. Name and address of the preparing organisation; and

xii. Distribution statement (For Baseline documentation in accordance with MIL-STD-961).

f. For data delivered in an alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

g. Table of Contents. When data is delivered in the form of a traditional document, the document shall contain a table of contents providing the number, title and page number of each titled paragraph, figure, table and appendix. For data delivered in electronic compatible format this information shall be available via the document “element”

hierarchy. For data delivered in an alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

h. Page Numbering/Labelling. When data is delivered in the form of a traditional document, each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data delivered in an alternative form, files, screens, or other entities shall be assigned names, numbers or electronic compatible language element names and “IDs” in such a way that desired data can be indexed and accessed.

i. Response to Tailoring Instructions. When data is delivered in the form of a traditional document, paragraphs that have been tailored out of the DID shall result in the corresponding paragraph number and title in the document, followed by "This paragraph has been tailored out". For data delivered in an alternative form, this representation need occur only in the table of contents or equivalent.

j. Paragraphs and Subparagraphs. Any section, paragraph or subparagraph in the DIDs may be written as multiple paragraphs or subparagraphs to enhance readability. All paragraphs or subparagraphs shall be numbered using the UK legal format.

k. Standard Data Descriptions. If a data description required by a DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

l. Security Markings. Security markings shall be in accordance with the Security Regulations within NATO, CM(2002)49.

m. For every document delivery, the Contractor shall provide metadata in electronic format. The exact metadata and format will be defined by the Purchaser after contract award. The following is the initial list of metadata:

   i. Contract Reference;

   ii. Project(s);

   iii. Cover letter Reference;

   iv. Document Title;

   v. Subject;

   vi. Document Date;

   vii. Status (CDRL, Draft CDRL, CDRL First Submission, CDRL Revised, CDRL Update, CDRL Final submission, ECP, ENB, Technical Documentation, TIM Minutes, Minutes of Meeting, Technical Report, etc.;

   viii. Enclosures (Number with Document Title);

   ix. Classification;

   x. Categories; (Management, Contractual, Technical, Engineering, Logistic, Supporting Documentation);

   xi. Originator (Contractor, sub-Contractor);

   xii. Document Type (letter, minutes, report, applicable document, technical document, etc.);

   xiii. Related Document/Event/Milestone;

   xiv. Keyword(s);

   xv. Description/comments.

3. EXPLANATION OF CONTRACT DATA REQUIREMENTS LIST (CDRL) DATA ITEMS

Block No.	Title	Explanation
1	Annex	Not required
2	Of Contract	The Contract Number.
3	For System	The Title of the system being procured.
4	Contractor	The name of the Contractor.
4a	CDRL Data Item Number	The number used to identify the CDRL Data Item in this contract.
5	Title or Description of Data	The title of the DID where the requirements for the CDRL Data Item are defined.
6	Subtitle	Amplification of DID title, if necessary, to make it specific to the application.
7	Data Item Description Acronym	Reflects the complete NCI Agency DID Acronyms, e.g. NCIA-DI-CMCCMP.
8	Date of First Submission	The initial data submission date is entered as follows: Day-Month-Year (for example, "02-Jan-96" not "02-01-96"). If data are constrained by a specific event or milestone, this constraint is entered. If the Effective Contract Date (ECD) start date is not known, the number of days after contract start that the data is due is entered (example: "ECD + 20 days for 20 calendar days after ECD"). If this date is not known or requires further clarification, Block 16 is used. If deferred delivery is involved, "Deferred Delivery" is entered.
9	Frequency	The following are the terms used in this block: Daily Days Annually Weekly Semi Annually Bi-weekly One time Monthly One time & revisions Bi-monthly Revisions as required Quarterly As required Change pages as required 2 separate submittals Deferred delivery X separate submittals One time preliminary draft If data is of a recurring type, it will be submitted at the end of the report period established in this block unless otherwise indicated in Blocks 16. Use of the term "as required" is further amplified in Block 16 to define the delivery schedule "as required" conditions.
10	Date of Subsequent Submissions/Event Identification	If data is submitted more than once, the dates of subsequent submissions are entered. If data is constrained by a specific event or milestone, the constraint is entered. (Example: Not later than fifteen (15) days after the end of the month, (End of Month + 15 days; not less than thirty (30) days before Critical Design Review, (CDR - 30 days)). IF THIS INFORMATION CLASSIFIES THE DATA LIST, IT IS LEFT BLANK.

Block No.	Title	Explanation
11	As of Date	If the data is submitted only once, the "AS OF" date (cut date) is entered as follows: Day/Month/Year ("5 Mar 09" rather than "5/3/09"). If the data is of a recurring type, the number of days prior to the end of the report period is entered; for example, "15" places the "as of" date for this report at 15 days before the end of each month, quarter, or year depending upon the frequency established in Block 9; "O" places the "as of" date at the end of each month, quarter, etc. (Block 16 is used for further explanation).
12	Technical Office	The office responsible for advising on the adequacy of the data.
13	Receipt Required	A "Yes" in this block indicates that the Purchaser is required to inform the Contractor of receipt of the document.
14	Approval required	A "Yes" in this block indicates that the Purchaser will provide written approval/rejection of Contractor submittals unless otherwise stated in Block 16. This is in addition to the Purchaser's right to approve or reject any Contractor submittals in accordance with Article 22 of NCI AGENCY Contract General Provisions.
15	Contract References	Not used
16	Remarks	Entered in this field is all pertinent Data Item Description information not specified elsewhere on the form and any required amplification of other block inputs. This may include Data Item Description modifications, special packaging and delivery information, amplification of "deferred" status, etc.
17	Distribution *	Entered here are: a. The office to whom the data item is to be delivered; b. The address of the office identified in a. above; c. The format required in which the data item should be submitted; d. The number of copies to be submitted. Note: The copies to be delivered will be in electronic form, unless otherwise indicated on the CDRL Data Item form.

4. SAMPLE OF CDRL DATA ITEM FORM

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXXX-VL	3. For System Voice Loop	4. Contractor XXXX	4a. CDRL No CMCCMP0
5. Title or Description of Data Contractor Configuration Management Plan	6. Subtitle N/A		7. Data Item Description Acronyms	
8. Date First Submission Draft: SRR-30CD	9. Frequency As Required	10. Subsequent Submissions Final: See 16.2.		11. As of Date N/A
12. Technical Office N/A	13. Receipt Required No	14. Approval Required Yes		
15. Contract References N/A				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Boulevard Leopold III B-1110 Bruxelles	Contractor Format	1
NSPA (if necessary)	L-8302 Capellen Luxembourg	Contractor Format	1

16. Remarks

16.1 The document format shall be in Microsoft Office (Office 2010) compatible format.

5. CDRL DATA ITEM NAMES

Serial	CDRL ID	Owner	ID #	Title	Subtitle
001	CMAUDITP0	CM	CMRD	Functional and Physical Audit Plan	Product Baseline
002	CMAUDITR0	CM	CMRD	Functional and Physical Audit Report	Product Baseline
003	CMCCMP0	CM	CMRD	Contractor Configuration Management Plan	N/A
004	CMDATEX0	CM	CMRD	CM Status Accounting Data Model	N/A
005	CMECP0	CM	CMRD	Engineering Change Proposal	N/A
006	CMERR0	CM	CMRD	Engineering Release Record	N/A
007	CMRAR0	SOW		System Requirements Analysis Results	N/A
008	CMRFD0	CM	CMRD	Request For Deviation	N/A
009	CMRFW0	CM	CMRD	Request For Waiver	N/A
010	HWCDD	SOW	108/-	Hard Ware - Architectural Design and System/Sub-system Design Description	HW Product Baseline
011	HWDDD	SOW	116/-	Hardware Components Description	
012	HWPD0	SOW	113/-	Product Drawings and Associated Equipment Lists	Product Baseline
013	ILSCOTS0	ILS	CMRD	Commercial Off-The-Shelf Manuals	N/A
014	ILSISUP0	ILS	188/-	Integrated Logistics Support Plan	N/A
015	ILSLSAX0	ILS	192/-	Logistic Support Analysis Record	Data Table Exchange Delivery
016	ILSPACP0	SOW	322/-	Packaging and Transportation Plan	N/A
017	ILSSAIP0	SOW	269/-	Recommended Provisioning Lists	N/A
018	ILSTM0	SOW	291/-	Technical Manuals	N/A
019	ILSTRAP0	SOW	304/-	Training Plan	N/A
020	ILSTRCR0	SOW	315/316/-	Trainee and Training Course Completion Report and Certificates of Training	N/A
021	ILSTRMT0	SOW	308/-	Training Documentation	N/A
022	PMBCPR0	SOW	346/-	Contractor’s Progress, Status and man-Month Report	
023	PMCONFA0	SOW		Conference Agenda	PMR, SRR, CDR Agendas

Serial	CDRL ID	Owner	ID #	Title	Subtitle
024	PMCONFM0	SOW	360/-	Conference Minutes	PMR, SRR, CDR, CLS Minutes
025	PMMANP0	SOW	334/-	Programme Management Plan	N/A
026	PMMIPS1	SOW	348/-	Master Integrated Program Schedule	N/A
027	PPBCWBS0	SOW	349/-	Contract Work Breakdown Structure	N/A
028	PSIRS0	PS		Interface Requirements Specification	Product Baseline
029	PSSRS0	PS	SOW146/-	Software Requirements Specification	Allocated Baseline
030	QMBQAP	SOW	372/-	Quality Assurance Plan	N/A
031	RAMPROP0	ILS	224/-	Reliability, Availability, Maintainability and Testability Programme Plan	N/A
032	RAMSTAR0	ILS	224/-	Reliability, Availability, Maintainability, Testability and Safety Programme Status Report	N/A
033	SPABD	SOW	161/-	Site As Built Drawings	
034	SPIEP	SOW	161/-	Site Installation Engineering Plan	
035	SPSARD	SOW	161/-	Site Adaptation Requirements Drawings.	
036	SPSIR	SOW	161/-	Site Inspection Reports	
037	SPSSR	SOW	161/-	Site Survey Reports	
038	SWIDD0	SOW	082/-	Interface Design Description	Product Baseline
039	SWSAD0	SOW	146/-	Software Architecture Description	N/A
040	SWSDD0	SOW	146/-	Software Design Description	Product Baseline
041	SWSDP0	SOW	146/-	Software Development Plan	N/A
042	SWSEMP0	SOW	027/-	Systems Engineering Management Plan	N/A
043	SWSPSPB0	SOW	146/-	Software Product Specification	Product Baseline
044	SWSSDD0	SOW	146/-	System/Subsystem Design Description	System Architectural Design
045	SWSVD0	SOW	146/-	Software Version Description	Product Baseline
046	TETD	Test	157/-	Test Description	FAT SAT Reliability Test Maintainability Test System Wide Load Test

Serial	CDRL ID	Owner	ID #	Title	Subtitle
047	TETP	Test	157/-	Test Plan	Support for Purchaser Tests
048	TETR	Test	157/-	Test Report	
049	TETRRD	Test	157/-	Test Readiness Review Documentation	
050	TETSUM	Test	157/-	Test Tool Software user’s Manuals	N/A

6. CDRL DATA ITEM FORMS

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor	4a. CDRL No CMAUDITP0 001
5. Title or Description of Data Functional and Physical Audit Plan	6. Subtitle Product Baseline			7. Data Item Description Number NCIA-DI-CMAUDITP
8. Date First Submission see 16.1.	9. Frequency One time & revisions	10. Subsequent Submissions N/A		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL.				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z, Boulevard Leopold III B-1110 Bruxelles, Belgium	Contractor Format	1

16. Remarks

16.1. Date first submission:

FCA – 30 days for each CI being separately audited.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No CMAUDITR0 002
5. Title or Description of Data Functional and Physical Audit Report	6. Subtitle Product Baseline		7. Data Item Description Number NCIA-DI-CMAUDITR	
8. Date First Submission see 16.1.	9. Frequency One time & revisions	10. Subsequent Submissions see 16.2.		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z, Boulevard Leopold III B-1110 Bruxelles, Belgium	Contractor Format	1

16. Remarks

16.1. Date first submission:

FCA/PCA conduct + 8 CD for each CI being separately audited.

16.2. Final Submission:

FCA/PCA conduct + 30 CD for each CI being separately audited.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXXX-NCS	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No CMCCMP0003
5. Title or Description of Data Contractor Configuration Management Plan	6. Subtitle N/A		7. Data Item Description Number NCIA-DI-CMCCMP	
8. Date First Submission EDC+60CD	9. Frequency As Required	10. Subsequent Submissions N/A		11. As of Date N/A
12. Technical Office	13. Receipt Required No	14. Approval Required Yes		
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-1110 Bruxelles Belgium	see 16.1.	1

16. Remarks

16.1. The document format shall be a Microsoft Office (min. Office 2010) compatible format.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor	4a. CDRL No CMDATEX0 004
5. Title or Description of Data CM Status Accounting Data	6. Subtitle N/A			7. Data Item Description Number NCIA-DI-CMDATEX
8. Date First Submission EDC+60CD	9. Frequency After each update	10. Subsequent Submissions		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL.				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z, Boulevard Leopold III B-1110 Bruxelles, Belgium	XML format	1

16. Remarks

16.1. The detailed schema describing all relevant data elements shall be described in the Contractor CMP.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No CMECP0 005
5. Title or Description of Data Engineering Change Proposal	6. Subtitle N/A			7. Data Item Description Number NCIA-DI-CMECP
8. Date First Submission As required	9. Frequency As required	10. Subsequent Submissions N/A		11. As of Date N/A
12. Technical Office	13. Receipt Required No	14. Approval Required Yes		
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL.				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z, Boulevard Leopold III B-1110 Bruxelles, Belgium	see 16.1., 16.2.	1

16. Remarks

16.1. The document format shall be a Microsoft Office (min. Office 2010) compatible format.

16.2. Data Item Description submittal in Extensible Markup Language (XML) is acceptable. An XML Document Type Definition (DTD), associated XML document template, and other information need to be approved by the purchaser.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No CMERR0 006
5. Title or Description of Data Engineering Release Record	6. Subtitle N/A			7. Data Item Description Number NCIA-DI-CMERR
8. Date First Submission Release of Configuration Documentation	9. Frequency As required	10. Subsequent Submissions N/A		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL.				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-1110 Bruxelles Belgium	see 16.1., 16.2.	1

16. Remarks

16.1. The document format shall be a Microsoft Office (min. Office 2010) compatible format.

16.2. Data Item Description submittal in Extensible Markup Language (XML) is acceptable. An XML Document Type Definition (DTD), associated XML document template, and other information need to be approved by the purchaser.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No CMRAR0 007
5. Title or Description of Data System Requirements Analysis Report	6. Subtitle N/A		7. Data Item Description Number NCIA-DI-CMRAR	
8. Date First Submission Draft SRR-30CD	9. Frequency Revisions as required	10. Subsequent Submissions Final: See 16.2.		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z, Boulevard Leopold III B-1110 Bruxelles, Belgium	Contractor Format	1 1

16. Remarks

16.1. The Purchaser will provide informal comments on the Draft as available. The Purchaser will provide comments on the Draft 15CD after the start of the SRR or 10CD after the end of the SRR, whichever is later.

16.2. The contractor shall deliver the Final after the receipt of formal Purchaser's comments on the Draft (See 16.1.).

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No CMRFD0 008
5. Title or Description of Data Request For Deviation	6. Subtitle N/A			7. Data Item Description Number NCIA-DI-CMRFD
8. Date First Submission As required	9. Frequency As required	10. Subsequent Submissions N/A		11. As of Date N/A
12. Technical Office	13. Receipt Required Yes		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z, Boulevard Leopold III B-1110 Bruxelles, Belgium	see 16.1., 16.2.	1

16. Remarks

16.1. The document format shall be a Microsoft Office (min. Office 2010) compatible format.

16.2. Data Item Description submittal in Extensible Markup Language (XML) is acceptable. An XML Document Type Definition (DTD), associated XML document template, and other information need to be approved by the purchaser.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No CMRFW0 009
5. Title or Description of Data Request For Waiver	6. Subtitle N/A			7. Data Item Description Number NCIA-DI-CMRFW
8. Date First Submission As required	9. Frequency As required	10. Subsequent Submissions N/A		11. As of Date N/A
12. Technical Office	13. Receipt Required Yes		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL.				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z, Boulevard Leopold III B-1110 Bruxelles, Belgium	see 16.1., 16.2.	1

16. Remarks

16.1. The document format shall be a Microsoft Office (Office 2010) compatible format.

16.2. Data Item Description submittal in Extensible Markup Language (XML) is acceptable. An XML Document Type Definition (DTD), associated XML document template, and other information need to be approved by the purchaser.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System Voice Loop	4. Contractor XXXX	4a. CDRL No HWCDD0 010
5. Title or Description of Data Hardware Product Specification	6. Subtitle Product Baseline			7. Data Item Description Number NCIA-DI-HWCDD
8. Date First Submission CDR-30CD	9. Frequency As required	10. Subsequent Submissions PCA-30CD PSA-30CD		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z, Boulevard Leopold III B-1110 Bruxelles, Belgium	see 16.2., 16.3.	

16. Remarks

16.1. The PS includes by reference the updated HWDDs and IDDs.

16.2. The document format shall be a Microsoft Office (Office 2010) compatible format.

16.3. Data Item Description submittal in Extensible Markup Language (XML) is acceptable. An XML Document Type Definition (DTD), associated XML document template, and other information need to be approved by the purchaser.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No HWDDDD 011
5. Title or Description of Data Hardware Components Description	6. Subtitle 1. System Architectural Design - System Level 2. System Architectural Design - Generic Level 3. Sub-System Architectural Design - Generic Level 4. Sub-System Architectural Design - Site-Specific Level		7. Data Item Description Number NCIA-DI-HWDDD	
8. Date First Submission a. SDR-30CD	9. Frequency One time & revisions (see 16.1.)	10. Subsequent Submissions		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes (see 16.2.)	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCIA, AIR C2 PROGRAMME OFFICE	Building Z Boulevard Leopold III B-1110 Bruxelles	Contractor Format	1

16. Remarks

16.1. Block 9: intended to be complete and stable with first submission; updated only if necessary; not intended to change.

16.2. Block 14: Purchaser Approval cycle is 30 CD.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No HWPD0 012
5. Title or Description of Data Product Drawings and Associated Equipment Lists	6. Subtitle Product Baseline		7. Data Item Description Number NCIA-DI-HWPD	
8. Date First Submission First CDR-30CD	9. Frequency As required	10. Subsequent Submissions PCA-30CD Final: PSA+30CD		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z, Boulevard Leopold III B-1110 Bruxelles, Belgium	Contractor format.	1

16. Remarks

16.1. These shall be produced in Microsoft Office 2010 object formats/Microsoft VISIO format.

16.2. Details concerning product model data shall be compliant with STANAG 4661 and need to be approved by the purchaser.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No ILSCOTS0 013
5. Title or Description of Data Commercial Off-The-Shelf Manuals	6. Subtitle N/A		7. Data Item Description Number NCIA-DI-ILSCOTS	
8. Date First Submission CDR+60CD	9. Frequency One time & revisions	10. Subsequent Submissions See 16.1.		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required No	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z, Boulevard Leopold III B-1110 Bruxelles, Belgium	See 16.2.	a. 1 for soft copy b. 1 for hard copy

16. Remarks

16.1. a. Revisions due to accepted equipment change: no later than the equipment delivery to the site.

b. Final submission of COTS manuals: Site PSA-30CD.

NOTE: Final submission required only if previously submitted version is not current at First PSA.

c. COTS as-is material shall be available for In Process Reviews,

d. COTS as-is material and supplemental data (as required) shall be available for validation,

e. Validated COTS material shall be available for training purposes (number of copies in accordance with the Training Plan).

16.2. Deliverable Form

(1) COTS material shall be delivered in the following form:

a. COTS as-is in electronic copy,

b. COTS supplemental data in the same form as the Contractor developed TMs.

Approval

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No ILSISUP0 014
5. Title or Description of Data Integrated Logistics Support Plan	6. Subtitle N/A		7. Data Item Description Number NCIA-DI-ILSISUP	
8. Date First Submission EDC+90CD	9. Frequency One time & revisions	10. Subsequent Submissions		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z, Boulevard Leopold III B-1110 Bruxelles, Belgium	Contractor Format	1

16. Remarks

16.1 Project ILS and Contractor's ILSP shall follow the requirements set within the SOW and specific ILSC requirements included in the SOW Annexes.

Approval

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No ILSLSAX0 015
5. Title or Description of Data Logistic Support Analysis Record	6. Subtitle Data table exchange delivery		7. Data Item Description Number NCIA-DI-ILSLSAX	
8. Date First Submission EDC+180CD	9. Frequency See 16.1.	10. Subsequent Submissions See 16.2., 16.3. and 16.4.		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z, Boulevard Leopold III B-1110 Bruxelles, Belgium	LSA Tool	1

16. Remarks

16.1. Quarterly submissions containing full LSAR and updates to the LSAR since last submission.

16.2. Annual submissions, and at CDR and PSA, are to comprise a full LSAR data file along with the quarterly LSAR data update.

16.3. The LSAR CDRL will be the vehicle to release and approve any LSA related data or analysis:

a LSA Support Plans (LSPs) shall be submitted for each installation site VL system through the LSAR;

i. LSPs shall be submitted incrementally with at least one draft plan submittal not later than CDR +90CD and last of the draft plans submitted not later than CDR +180CD;

ii. Final LSA Support Plan(s) to be submitted 60 CD after receipt of Purchaser's comments on each draft;

iii. Updates shall be provided during any phase (acquisition or CLS) as soon as the design or maintenance concept change.

b. LORA support data shall be submitted phased with LSPs deliveries; and

c. Support Equipment Recommendation Data (SERD) shall be submitted through the LSAR for any special-to-type TTE identified in the LSP.

i. First submission shall be at Approval of each final LSA Support Plan(s) + 30 CD;

ii. Final submission shall be at Final LSA Support Plan(s) release;

iii. Updates shall be provided during any phase (acquisition or CLS) as soon as the design or maintenance concept change.

16.4. The Contractor can combine LSAR deliveries whenever possible in order to optimise the review process.

16.5. The Contractor shall provide a LSA data validation report as an Annex of the LSAR CDRL.

16.6. Transfer of the LSAR data repository maintenance authority to the Purchaser shall be determined at the Logistics Guidance Conference, and in accordance with the Logistic Support Concept.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No ILSPACP0 016
5. Title or Description of Data Packaging and Transportation Plan	6. Subtitle N/A			7. Data Item Description Number NCIA-DI-ILSPACP
8. Date First Submission CDR+90CD	9. Frequency One time & revisions	10. Subsequent Submissions N/A		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	

15. Contract References

All SOW requirements (including SOW Annexes) relating to this CDRL. Specific Territorial Host nation requirements shall be accounted for in individual site surveys.

Contractor's shall determine all required Transport, Import/Customs requirements for NATO use equipment 45 CD prior to site installation, to allow sufficient lead time to transport equipment to the intended installation site and clear national customs procedures.

17. DISTRIBUTION

Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-110 Bruxelles Belgium	Contractor Format	1

16. Remarks

16.1 The VL project will deliver across 26 NATO nations within the European theatre of Operations. The Contractor is to specifically verify, differing THN requirements for the transportation and shipping of equipment for NATO use in each respective country. E.g. Albania has specific Import/customs requirements for NATO equipment.

Approval

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No ILSSAIP0 017
5. Title or Description of Data Recommended Provisioning Lists	6. Subtitle N/A		7. Data Item Description Number NCIA-DI-ILSSAIP	
8. Date First Submission PC-30CD and 16.1.	9. Frequency One time & revisions	10. Subsequent Submissions See 16.2. and 16.3.		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-110 Bruxelles Belgium	Contractor Format	1

16. Remarks

16.1. Initial submission shall be done not earlier than LSPs approval date (through LSAR CDRL Data Item) and LSA data validation completion (through LSAR CDRL Data Item) but no later than date of Provisioning Conference – 30 CD.

16.2. Final submission at date of Provisioning Conference + 30 CD.

16.3. During any CLS period, initial at date of Provisioning Conference – 30 CD and final at date of Provisioning Conference + 30 CD.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No ILSTM0 018
5. Title or Description of Data Technical Manuals	6. Subtitle Non-COTS Manuals		7. Data Item Description Number NCIA-DI-ILSTM	
8. Date First Submission See 16.3.	9. Frequency One time & revisions	10. Subsequent Submissions		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION

Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-110 Bruxelles Belgium	See 16.4.	1.
NSPA	L-8302 Capellen Luxembourg	See 16.4.	1
NCI AGENCY, NPC	Blaarstraat 99 B-3700 Tongeren Belgium	See 16.4.	1.

16. Remarks

16.1. The Contractor shall provide TMs for all Non-COTS equipment in Microsoft Office 2010 document format, both electronic and hard copy, for each site the VL system equipment is installed at, at CD-60, and updates if required immediately following each site installation.

16.2. Provision of the required TM documentation is a check-list item on Site Inspection criteria following equipment installation.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No ILSTRAP0 0197
5. Title or Description of Data Training Plan	6. Subtitle N/A			7. Data Item Description Number NCIA-DI-ILSTRAP
8. Date First Submission See 16.1.	9. Frequency One time & revisions	10. Subsequent Submissions See 16.2.		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION

Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-110 Bruxelles Belgium	Contractor Format	1

16. Remarks

16.1. Draft submitted CDR + 90CD.

16.2.

16.2.1. Final submitted accepted final LSP + 60CD.

16.2.2. Draft submitted Option exercising + 90CD.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No ILSTRCR0 020
5. Title or Description of Data Trainee And Training Course Completion Report and Certificates of Training	6. Subtitle N/A		7. Data Item Description Number NCIA-DI-ILSTRCR	
8. Date First Submission See 16.1.	9. Frequency N/A	10. Subsequent Submissions N/A	11. As of Date N/A	
12. Technical Office	13. Receipt Required No	14. Approval Required Yes		
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-110 Bruxelles Belgium	Contractor Format	1

16. Remarks

16.1. Each training course+8CD and NLT PSA -10CD.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No ILSTRMT0 021
5. Title or Description of Data Training Documentation	6. Subtitle N/A			7. Data Item Description Number NCIA-DI-ILSTRMT
8. Date First Submission Each Course - 90CD	9. Frequency One time & revisions	10. Subsequent Submissions N/A		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-110 Bruxelles Belgium	Contractor Format	1

16. Remarks

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No PMBCPR0 022
5. Title or Description of Data Contractor's Progress, Status and Man-Month Report	6. Subtitle See 16.1.		7. Data Item Description Acronyms NCIA-DI- PMBCPR0	
8. Date First Submission Conference+10CD	9. Frequency Revisions as required	10. Subsequent Submissions Each Conference+10CD		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-1110 Bruxelles Belgium	Contractor Format	1

16. Remarks

16.1. Subtitles

16.1.1. Initial Project Management Review & Project Management Review Minutes

16.1.2. System Requirements Review Minutes

16.1.3. Preliminary Design Review Minutes

16.1.4. Critical Design Review Minutes

16.1.5. RAM Programme Review and Testability Programme Review Minutes

16.1.6. Logistics Guidance Conference Minutes

16.1.7. LSA Programme Review and LORA Programme Review Minutes

16.1.8. Provisioning Conference Minutes

16.1.9. Technical Manual Review Minutes

16.1.10. Technical Interchange Meeting Minutes

16.1.11. Final Systems Acceptance Minutes

Approval

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No PMCONFA0 023
5. Title or Description of Data Conference Agenda	6. Subtitle See 16.1.		7. Data Item Description Acronyms NCIA-DI-PMCONFA	
8. Date First Submission See 16.2.	9. Frequency Revisions as required	10. Subsequent Submissions See 16.2.		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required No	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-1110 Bruxelles Belgium	Contractor Format	1

16. Remarks

16.1. Subtitles.

16.1.1. IPMR and PMR Agendas.

16.1.2. SRR Agenda.

16.1.3. PDR Agenda.

16.1.4. CDR Agenda.

16.1.5. RAM/System Safety Programme and Testability Programme Review Agendas.

16.1.6. Logistics Guidance Conference Agenda.

16.1.7. LSA Programme Review and LORA Programme Review Agendas.

16.1.8. Technical Manual Reviews Agendas.

16.1.9. Provisioning Conference Agenda.

16.1.10 Technical Interchange Meeting Agendas.

16.1.11 Final System Acceptance Meeting Agenda.

16.2. Conference -10CD

16.3. For PMR, the agenda shall cover as a minimum the following topics:

A. Detailed schedules;

B. Development status/progress in all areas;

C. Equipment production schedule and status;

D. Installation and checkout status;

E. Engineering status;

F. Subcontractor procurement status;

G. Equipment/material delivery status;

H. Technical Manuals status;

I. Configuration Management status;

J. Contract Data status;

K. Training schedules;

L. Spare parts schedules;

M. Testing schedules;

N. Support equipment status;

O. Problem status;

P. Risk management;

Q. Contractual aspects;

R. Review of open action items;

S. Change control issues; and

T. Interface issues.

16.4. Technical Manual Reviews shall include, but not be limited to:

a. IETM Database and Document Type Definitions Development;

b. Amendments to existing manuals;

c. Classified data;

d. COTS manuals and integration into the IETM Database;

e. Data sources;

f. Schedule and interrelationships with other ILS elements;

g. Review of amendments via personal computer with the interleaf publishing system and hardcopy; and

h. Utilization of the portable IETM viewing equipment to examine the IETM(s).

16.5. Provisioning Conference shall include, but not be limited to the following:

a. Review and explanation of the spares calculation model and any changes recommended and approved;

b. Recommended Spare Parts List (RSPL); and

c. All relevant data and documentation to support the above (LSA, TDP, TMs, etc.).

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No PMCONFM0 024
5. Title or Description of Data Conference Minutes	6. Subtitle See 16.1.		7. Data Item Description Acronyms NCIA-DI-PMCONFM	
8. Date First Submission Conference+15CD	9. Frequency Revisions as required	10. Subsequent Submissions Each Conference+15CD	11. As of Date N/A	
12. Technical Office	13. Receipt Required No	14. Approval Required Yes		
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-1110 Bruxelles Belgium	Contractor Format	1

16. Remarks

16.1. Subtitles

16.1.1. Initial Project Management Review & Project Management Review Minutes

16.1.2. System Requirements Review Minutes

16.1.3. Preliminary Design Review Minutes

16.1.4. Critical Design Review Minutes

16.1.5. RAM Programme Review and Testability Programme Review Minutes

16.1.6. Logistics Guidance Conference Minutes

16.1.7. LSA Programme Review and LORA Programme Review Minutes

16.1.8. Provisioning Conference Minutes

16.1.9. Technical Manual Review Minutes

16.1.10. Technical Interchange Meeting Minutes

16.1.11. Final Systems Acceptance Minutes

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No PMMANP0 025
5. Title or Description of Data Programme Management Plan	6. Subtitle N/A			7. Data Item Description Acronyms NCIA-DI-PMMANP
8. Date First Submission EDC+60CD	9. Frequency One time & revisions	10. Subsequent Submissions N/A		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes (See 16.1.)	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-1110 Bruxelles Belgium	Contractor Format	1

16. Remarks

16.1. Purchaser Approval cycle will be 60 CD

16.2. The Contractor may choose to use his Company-internal template structure for the PMP CDRL Data Item. In this case, the Contractor shall demonstrate by means of a cross-reference matrix delivered with the CDRL Data Item, that the relevant requirements of the referenced DID have been satisfied.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No PMMIPS1 026
5. Title or Description of Data Master Integrated Programme Schedule	6. Subtitle N/A		7. Data Item Description Acronyms NCIA-DI-PMMIPS	
8. Date First Submission EDC+60CD	9. Frequency As required	10. Subsequent Submissions Each PMR –60CD		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-1110 Bruxelles Belgium	Contractor Format	1

16. Remarks

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No PPBCWBS0 027
5. Title or Description of Data Contract Work Breakdown Structure	6. Subtitle N/A			7. Data Item Description Acronyms NCIA-DI-PPBCWBS
8. Date First Submission EDC+60CD	9. Frequency One & revisions	10. Subsequent Submissions At each signature of an option or contract modification that impacts the CWBS+30 CD		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-1110 Bruxelles Belgium	Contractor Format	1

16. Remarks

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No SWIRS0 028
5. Title or Description of Data Interface Requirements Specification	6. Subtitle Allocated Baseline		7. Data Item Description Number NCIA-DI-SWIRS	
8. Date First Submission Draft: SSR-45CD (See 16.1. and 16.2.)	9. Frequency As required	10. Subsequent Submissions PDR -30CD, CDR -30CD, (See 16.3.)	11. As of Date N/A	
12. Technical Office	13. Receipt Required No	14. Approval Required Yes		
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Building Z Boulevard Leopold III B-1110 Bruxelles	see 16.2., 16.3.	1

16. Remarks

16.1. The Purchaser will provide informal comments on the Draft as available. The Purchaser will provide formal comments on the Draft 25CD after the start of the SSR or 10CD after the end of the SSR, whichever is later.

16.2. The document format shall be a Microsoft Office 2010 compatible format.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No SWSRS0 029
5. Title or Description of Data Software Requirements Specification	6. Subtitle Allocated Baseline		7. Data Item Description Number NCIA-DI-SWSRS	
8. Date First Submission Draft: SSR-45CD	9. Frequency As required	10. Subsequent Submissions PDR -30CD, CDR -30CD,		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Building Z Boulevard Leopold III B-1110 Bruxelles	see 16.3., 16.4.	1

16. Remarks

.

16.1. The Purchaser will provide informal comments on the Draft as available. The Purchaser will provide formal comments on the Draft 25CD after the start of the SSR or 10CD after the end of the SSR, whichever is later.

16.2. COTS CSCIs: N/A

16.3. The document format shall be a Microsoft Office 2010 compatible format.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No QMBQAP 030
5. Title or Description of Data Quality Assurance Plan	6. Subtitle N/A			7. Data Item Description Number NCIA-DI-QMBQAP
8. Date First Submission EDC+60CD	9. Frequency One time & revisions	10. Subsequent Submissions See 16.1.		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-1110 Bruxelles Belgium	Contractor Format	1

16. Remarks

16.1. The Contractor shall review the QA Plan 6 months, and 12 months after EDC. The Contractor shall update the QA Plan as necessary after these reviews. After the first 12 months following EDC, the Contractor shall annually review the QA Plan and update as necessary. When deficiencies or risks are detected with the Plan or the QA programme by either the Purchaser or the Contractor requiring preventative or corrective action, the QA Plan shall be updated to reflect any system or process changes.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No RAMPROP0 031
5. Title or Description of Data Reliability, Availability, Maintainability and Testability Programme Plan	6. Subtitle N/A		7. Data Item Description Number NCIA-DI-RAMPROP	
8. Date First Submission EDC+90CD	9. Frequency One time & revisions	10. Subsequent Submissions		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION

Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-110 Bruxelles Belgium	Contractor Format	1
NSPA	L-8302 Capellen Luxembourg	Contractor Format	1
NPC	Blaarstraat 99 B-3700 Tongeren Belgium	Contractor Format	1

16. Remarks

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No RAMSTAR0 032
5. Title or Description of Data Reliability, Availability, Maintainability, Testability and Safety Programme Status Report	6. Subtitle N/A		7. Data Item Description Number NCIA-DI-RAMSTAR	
8. Date First Submission RAMT programme review-20CD	9. Frequency 3 Times per year	10. Subsequent Submissions RAMT programme review-20CD	11. As of Date N/A	
12. Technical Office	13. Receipt Required No	14. Approval Required No		
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION

Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z Boulevard Leopold III B-110 Bruxelles Belgium	Contractor Format	1
NSPA	L-8302 Capellen Luxembourg	Contractor Format	1
NPC	Blaarstraat 99 B-3700 Tongeren Belgium	Contractor Format	1

16. Remarks

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor ACSI	4a. CDRL No SPABD 033
5. Title or Description of Data Site As Built Drawings	6. Subtitle N/A		7. Data Item Description Number NCIA-DI-SPABD	
8. Date First Submission FST-90CD	9. Frequency As required	10. Subsequent Submissions N/A		11. As of Date N/A
12. Technical Office NCI AGENCY	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Building Z Boulevard Leopold III B-1110 Bruxelles	Contractor Format	1

16. Remarks

16.1. The Contractor shall provide Site ABD in Microsoft Office/Microsoft VISIO 2010 format.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor ACSI	4a. CDRL No SPIEP 034
5. Title or Description of Data Site Installation Engineering Plan	6. Subtitle N/A			7. Data Item Description Number NCIA-DI-SPIEP
8. Date First Submission Site Survey +30CD	9. Frequency As required	10. Subsequent Submissions Reviewed following Purchaser comments		11. As of Date N/A
12. Technical Office NCI AGENCY/	13. Receipt Required No	14. Approval Required Yes		
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Building Z Boulevard Leopold III B-1110 Bruxelles	Contractor Format	1

16. Remarks

16.1. The Contractor shall provide SIEPs for each site; no later than +30 CD following Initial Site Surveys. SIEPs shall be submitted using Microsoft Office 2010 format and provided to the Purchaser's approval and comment, at submission +10 CDs.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor ACSI	4a. CDRL No SPSARD 035
5. Title or Description of Data Site Adaptations Requirements Drawings	6. Subtitle N/A		7. Data Item Description Number NCIA-DI-SPSARD	
8. Date First Submission Site Survey +20CD.	9. Frequency As required	10. Subsequent Submissions N/A		11. As of Date N/A
12. Technical Office NCI AGENCY/EG/SB	13. Receipt Required No	14. Approval Required Yes - Purchaser Yes - THN		
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Building Z Boulevard Leopold III B-1110 Bruxelles	Contractor Format	1

16. Remarks

16.1. Site Adaptation Requirements, civil works will need to be co-ordinated both with the Purchaser and the Territorial Host nation at which site the installation and Site Adaptations will take place.

16.2 Technical drawings, Site Survey Report (separate CDRL) and specific site requirements are to be provided using Microsoft Office 2010 and Microsoft VISIO 2010 compatible formats.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor ACSI	4a. CDRL No SPSPSIR 036
5. Title or Description of Data Site Inspection Reports	6. Subtitle N/A			7. Data Item Description Number NCIA-DI-SPSIR
8. Date First Submission FST-60CD	9. Frequency As required	10. Subsequent Submissions N/A		11. As of Date N/A
12. Technical Office NCI AGENCY/EG/SB	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Building Z Boulevard Leopold III B-1110 Bruxelles	Contractor Format	1

16. Remarks

16.1. Following Site installations, IOC and format subject to Formal Testing schedules, the Contractor is to submit a formal Site Inspection Report to confirm that all required Site Installation, and SOW and ILSC; specific Site Activities have been completed. The SIR is to be submitted no later than 45 CD following Site IOC and completion of all testing CDRL activities, using Microsoft Office 2010 formats.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor ACSI	4a. CDRL No SPSPSSR 037
5. Title or Description of Data Site Survey Reports	6. Subtitle N/A			7. Data Item Description Number NCIA-DI-SPSSR
8. Date First Submission Provisional Template 30 CD prior to Site Survey.	9. Frequency As required	10. Subsequent Submissions N/A		11. As of Date N/A
12. Technical Office NCI AGENCY/EG/SB	13. Receipt Required No		14. Approval Required Yes	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Building Z Boulevard Leopold III B-1110 Bruxelles	Contractor Format	1

16. Remarks

16.1. The Contractor is required to complete individual Site Surveys for each site in accordance with Project SOW Site locations list (SOW Annex D).

16.2 The Contractor is to submit a Site Survey Template to the Purchaser 30CD prior to each site visit to confirm the full level of investigations required for each site.

16.3 The Contractor is to submit a formal Site Survey Report of identified issues, risks and problem areas for each site visited, no later than 10 CD following the Site Survey.

16.4 The Contractor will need to identify VL Project system requirements, available infrastructure, power, environment and local THN legislation and engineering requirements for each site.

16.5 The Contractor is to determine individual THN Transportation and Customs requirements as part of the Site Survey activity. (This is a separate CDRL, however carried out concurrently with the Site Survey activity).

16.6 Site Survey Reports are to be submitted using Microsoft Office 2010 formats.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No SWIDD0 038
5. Title or Description of Data Interface Design Description	6. Subtitle Product Baseline		7. Data Item Description Number NCIA-DI-SWIDD	
8. Date First Submission PDR-30CD	9. Frequency	10. Subsequent Submissions CDR-45CD TRR-45CD,PSA -30CD	11. As of Date N/A	
12. Technical Office	13. Receipt Required No	14. Approval Required Yes		
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Building Z Boulevard Leopold III B-1110 Bruxelles		2

16. Remarks

16.1.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No SWSAD0 039
5. Title or Description of Data Software Architecture Description	6. Subtitle N/A			7. Data Item Description Number NCIA-DI-SWSAD
8. Date First Submission PDR-45 CD	9. Frequency As required	10. Subsequent Submissions N/A		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required No	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Building Z Boulevard Leopold III B-1110 Bruxelles	Contractor Format	1

16. Remarks

16.1.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No SWSDD0 040
5. Title or Description of Data Software Design Description	6. Subtitle Product Baseline* 1. CSCI-Wide Design Decisions 2. CSCI-Architectural Design 3. CSCI Detailed Design		7. Data Item Description Number NCIA-DI-SWSDD	
8. Date First Submission (see 16.1.)	9. Frequency One & revisions	10. Subsequent Submissions PDR-30CD CDR-30CD TRR-30CD STR-30CD PCA-30CD PSA-30CD, (see 16.2.)	11. As of Date N/A	
12. Technical Office NCI AGENCY/EG/SWB	13. Receipt Required No		14. Approval Required Yes.	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Building Z Boulevard Leopold III B-1110 Bruxelles	CASE Tool	1

16. Remarks

16.1. Block 8:

a. first submission of subtitles 1 & 2 shall be submitted 30CD prior to PDR.

b. subtitle 3 together with necessary updates of subtitles 1 & 2 shall be submitted 30CD prior to CDR.

16.2. Block 10:

a. subtitles 1 & 2 shall be submitted 30CD prior to each PDR; subtitle 3 together with necessary updates of subtitles 1 & 2 submitted 30CD prior to each CDR.

b. updates of the SDD to match the "as - built" software during software implementation shall be submitted 30CD prior to each TRR and PCA.

c. updates of the SDD to match the "as - built" software during software implementation shall be submitted 30CD prior to each STR.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No SWSDP0 041
5. Title or Description of Data Software Development Plan	6. Subtitle N/A			7. Data Item Description Number NCIA-DI-SWSDP
8. Date First Submission SDR +8CD	9. Frequency One time & revisions	10. Subsequent Submissions		11. As of Date N/A
12. Technical Office	13. Receipt Required No			14. Approval Required Yes (see 16.1.)
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Building Z Boulevard Leopold III B-1110 Bruxelles	Contractor Format	1

16. Remarks

16.1. Purchaser Approval cycle will be 60 CD for first submission.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No SWSEMP00 042
5. Title or Description of Data Systems Engineering Management Plan	6. Subtitle N/A		7. Data Item Description Number NCIA-DI-SWSEMP	
8. Date First Submission EDC+60CD	9. Frequency One time & revisions	10. Subsequent Submissions N/A		11. As of Date N/A
12. Technical Office	13. Receipt Required No		14. Approval Required Yes (see 16.1.)	
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL :				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z, Boulevard Leopold III B-1110 Bruxelles, Belgium	Contractor Format	1

16. Remarks

16.1. Purchaser Approval cycle will be 60 CD.

16.2. The Contractor may choose to use his Company-internal template structure for the SEMP CDRL Data Item. In this case, the Contractor shall demonstrate by means of a cross-reference matrix delivered with the CDRL Data Item, that the relevant requirements of the referenced DID have been satisfied.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No SWSPSPB0 043
5. Title or Description of Data Software Product Specification	6. Subtitle Product Baseline			7. Data Item Description Number NCIA-DI-SWSPSPB
8. Date First Submission CDR-30CD	9. Frequency As required	10. Subsequent Submissions PCA-30CD PSA-30CD		11. As of Date N/A
12. Technical Office	13. Receipt Required No	14. Approval Required Yes		
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z, Boulevard Leopold III B-1110 Bruxelles, Belgium	see 16.2., 16.3.	

16. Remarks

16.1. The SPS includes by reference the updated SSDDs, SDDs and IDDs.

16.2. The document format shall be a Microsoft Office 2010 compatible format.

16.3. Data Item Description submittal in Extensible Markup Language (XML) is acceptable. An XML Document Type Definition (DTD), associated XML document template, and other information need to be approved by the purchaser.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No SWSSDD0 044
5. Title or Description of Data System/Subsystem Design Description	6. Subtitle 1. System Architectural Design - System Level 2. System Architectural Design - Generic Level 3. Sub-System Architectural Design - Generic Level 4. Sub-System Architectural Design - Site-Specific Level		7. Data Item Description Number NCIA-DI-SWSSDD	
8. Date First Submission a. SDR-30CD	9. Frequency One time & revisions (see 16.1.)	10. Subsequent Submissions	11. As of Date N/A	
12. Technical Office	13. Receipt Required No	14. Approval Required Yes (see 16.2.)		
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCIA, AIR C2 PROGRAMME OFFICE	Building Z Boulevard Leopold III B-1110 Bruxelles	Contractor Format	1

16. Remarks

16.1. Block 9: intended to be complete and stable with first submission; updated only if necessary; not intended to change.

16.2. Block 14: Purchaser Approval cycle is 60 CD.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System VOICE LOOP	4. Contractor XXXX	4a. CDRL No SWSVD0 045
5. Title or Description of Data Software Version Description	6. Subtitle Product Baseline		7. Data Item Description Number NCIA-DI-SWSVD	
8. Date First Submission Draft: CDR-30CD	9. Frequency As required	10. Subsequent Submissions Update: FCA/PCA-30CD Final: PSA-30CD		11. As of Date N/A
12. Technical Office	13. Receipt Required No	14. Approval Required Yes		
15. Contract References All SOW requirements (including SOW Annexes) relating to this CDRL				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Batiment Z, Boulevard Leopold III B-1110 Bruxelles, Belgium	see 16.1., 16.2.	1

16. Remarks

16.1. The document format shall be a Microsoft Office 2010 compatible format.

16.2. Data Item Description submittal in Extensible Markup Language (XML) is acceptable. An XML Document Type Definition (DTD), associated XML document template, and other information need to be approved by the purchaser.

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System Voice Loop	4. Contractor XXXX	4a. CDRL No TETD20 046
5. Title or Description of Data Test Description	6. Subtitle (See 16.6.) -FAT -SAT -MAI -INT -LOA -REL -EMIC -SEC			7. Data Item Description Number NCIA-DI-TETD
8. Date First Submission TRR -90CD; See 16.1.	9. Frequency One time & revisions; See 16.4. through 16.6.	10. Subsequent Submissions TRR -70CD; See 16.2.		11. As of Date N/A
12. Technical Office	13. Receipt Required No	14. Approval Required Yes; See 16.3.		
15. Contract References VL System SOW, Paragraph 3.5 “Test and Evaluation”; VL System SOW, Annex E "Purchaser Test and Evaluation Plan".				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Boulevard Léopold III B-1110 BRUXELLES Belgium	See 16.7.	1

16. Remarks

16.1. Deliver a Draft TD CDRL Data Item at TRR -90CD. This initial version is for information to the Purchaser and thus will not be formally reviewed. To ensure maturity of the document before it is issued to the Purchaser, this submission is subject to Test Description validation by the Contractor.

16.2. After the TD Validation period, deliver a TD at TRR -70CD as the CDRL Data Item.

i. The Contractor to use this Formal CDRL Data Item TD to conduct Dry Runs.

ii. In parallel, the Purchaser will review the Formal CDRL Data Item TD during a 45CD period after which a period of 15CD is reserved for comment resolution.

16.3. Incorporate the Purchaser comments plus redlines resulting from the Dry-Runs and deliver the updated CDRL Data Item as part of the TRR Documentation CDRL Data Item at TRR -8CD. All incorporated changes are subject to Purchaser approval during the TRR after which the TD will be used for formal Test Execution.

16.4. Maintain a master hard copy of the TD, which is to include all hand-written comments and redlines, during Test Execution.

16.5. After Formal Test Activities (Test Sessions or Test Events), deliver this Redlined 'As-Run' CDRL Data Item as part of the Test Report at Test End+8CD.

16.6. If there is an intention to re-use the As-Run TD, deliver a revised version of the CDRL Data Item, incorporating all the Purchaser comments and redlines from the Dry-Runs and the Formal Test

Execution latest at Test End +90CD and TRR -90CD of the Test Event where the document is to be re-used.

16.7. See VL System SOW, Annex E

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System Voice Loop	4. Contractor XXXX	4a. CDRL No TETP20 047
5. Title or Description of Data Test Plan	6. Subtitle (See 16.2.) FAT -SAT -MAI -INT -LOA -REL -EMIC -SEC			7. Data Item Description Number NCIA-DI-TETP
8. Date First Submission CDR -15CD; See 16.1.	9. Frequency As required	10. Subsequent Submissions TRR -90CD; See 16.2.		11. As of Date N/A
12. Technical Office	13. Receipt Required No	14. Approval Required Yes; See 16.3.		
15. Contract References VL System SOW, Paragraph 3.5 “Test and Evaluation”; VL System SOW, Annex E "Purchaser Test and Evaluation Plan".				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Boulevard Léopold III B-1110 BRUXELLES Belgium	See 16.4.	1

16. Remarks

16.1. Deliver a Draft CDRL Data Item for each of the Test Plans at CDR -15CD, for the Purchaser to prepare for CDR. The drafts should contain as much of the data specified in the associated DID as available. These drafts are to mature in close coordination with the Purchaser and lead to the submission of CDRL Data Items.

16.2. Deliver CDRL Data Items at TRR -90CD. This submission is required to contain the Purchaser approved contents of the drafts and be fully in accordance with the associated DID.

16.3. Purchaser Approval of Test Plans is a prerequisite for the formal submission of the associated Test Descriptions

16.4. See VL System SOW, Annex E

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System Voice Loop	4. Contractor XXXX	4a. CDRL No TETR20 048
5. Title or Description of Data Test Report	6. Subtitle (See 16.2.) -FAT -SAT -MAI -INT -LOA -REL -EMIC -SEC			7. Data Item Description Number NCIA-DI-TETR
8. Date First Submission Test Session End +8CD; See 16.1.	9. Frequency As Required; See 16.2.	10. Subsequent Submissions Test Event Closure +30CD; See 16.3.		11. As of Date N/A
12. Technical Office	13. Receipt Required No	14. Approval Required Yes; See 16.4.		
15. Contract References VL System SOW, Paragraph 3.5 “Test and Evaluation”; VL System SOW, Annex E "Purchaser Test and Evaluation Plan".				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Boulevard Léopold III B-1110 BRUXELLES Belgium	See 16.5.	1

16. Remarks

16.1. Deliver a Draft CDRL Data Item at the End of each Test Session +8CD. This submission only comprises the detailed results of the tests covered during the Test Session.

16.2. In case of a full or partial re-execution of a Test Session a revised submission is required.

16.3. Deliver a CDRL Data Item at the End of a Test Event +30CD. This submission constitutes a consolidated report of the results from all the Test Sessions within a Test Event completed with updates made to date.

16.4. Purchaser Approval of all Test Reports of a Test Event is one prerequisite for the formal submission of the associated Certificate of Test.

16.5. See VL System SOW, Annex E

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System Deployable Air Defence Radar	4. Contractor XXXX	4a. CDRL No TETRRD20 049
5. Title or Description of Data TRR Documentation	6. Subtitle (see 16.4.) -FAT -SAT -MAI -INT -LOA -REL -EMIC -SEC			7. Data Item Description Number NCIA-DI-TETRRD
8. Date First Submission TRR -35CD; See 16.1.	9. Frequency One time & revisions; See 16.3.	10. Subsequent Submissions TRR -8CD; See 16..2		11. As of Date N/A
12. Technical Office	13. Receipt Required No	14. Approval Required Yes; See 16.4.		
15. Contract References VL System SOW, Paragraph 3.5 “Test and Evaluation”; VL System SOW, Annex E "Purchaser Test and Evaluation Plan".				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Boulevard Léopold III B-1110 BRUXELLES Belgium	See 16.5.	1

16. Remarks

16.1. Deliver a Draft TRRD CDRL Data Item, including the Notification of Test at TRR -35CD.

16.2. Deliver a TRRD CDRL Data Item, including the Test Order at TRR -8CD.

16.3. Deliver the TRRD CDRL Data Item, including the signed Test Order plus any changes made since submission to the Purchaser (As Run), as part of the Draft Test Report at the End of each Test Session +8CD.

16.4. Purchaser Approval of Test Readiness Documentation, including the updated TD, is a prerequisite for entering formal Test Activities.

16.5. See VL System SOW, Annex E

CONTRACT DATA REQUIREMENTS LIST				
1. Annex	2. Of Contract CO-XXXXX-VL	3. For System Deployable Air Defence Radar	4. Contractor XXXX	4a. CDRL No TETSUM20 050
5. Title or Description of Data Test Tools User Manual	6. Subtitle			7. Data Item Description Number NCIA-DI-TETSUM
8. Date First Submission CDR -15CD; See 16.1.	9. Frequency As required	10. Subsequent Submissions TRR -90CD; See 16.2.		11. As of Date N/A
12. Technical Office NCI AGENCY/LOC1/DAC	13. Receipt Required No	14. Approval Required Yes; See 16.3.		
15. Contract References VL System SOW, Paragraph 3.5 “Test and Evaluation”; VL System SOW, Annex E "Purchaser Test and Evaluation Plan".				

17. DISTRIBUTION			
Office	Address	Format	No Copies
NCI AGENCY, AIR C2 PROGRAMME OFFICE	Boulevard Léopold III B-1110 BRUXELLES Belgium	See 16.4.	1

16. Remarks

16.1. Deliver the draft CDRL Data Item at CDR -15CD. This submission be subject to discussions during CDR, in conjunction with the Test Plans and is therefore required to contain as much of the data specified in the associated DID as available. This draft is to mature in close coordination with the Purchaser and lead to the submission of a CDRL Data Item.

16.2. Deliver the CDRL Data Item TRR -90CD of the Test Event in which the covered Tools are first used. This submission is required to contain the Purchaser approved contents of the draft plus the installation and configuration files required for the tools to perform their purpose in testing the SUTs, in a ready-for-use format.

16.3. Purchaser Approval of the TTUM is a prerequisite for the submission of the Test Descriptions that refer to them.

16.4. See VL System SOW, Annex E

This Page Intentionally Left Blank.

NATO Communications and Information Agency

RFQ-13639-ACCS

Statement of Work

for the Implementation of the

Enhancements to
NATO Integrated Air and Missile Defence System
Command and Control Communications

Voice Loop Communications

Data Item Description

NCI Agency, Book II, Part 4, Section 1, Annex B

Rev. -, 30.05.2013

This Page Intentionally Left Blank.

REVISION SHEET

ECP No.	Revision	Date
INITIAL RELEASE	-	30/May/2013

This Page Intentionally Left Blank.

TABLE OF CONTENTS

1. Functional and Physical Audit Plan (CMAUDITP0)
2. Functional and Physical Audit Report (CMAUDITR0)
3. Contractor Configuration Management Plan (CMCCMP0)
4. CM Status Accounting Data Model (CMDATEX0)
5. Engineering Change Proposal (CMECP0)
6. Engineering Release Record (CMERR0)
7. System Requirements Analysis Results (CMRAR0)
8. Request for Deviation (CMRFD0)
9. Request for Waiver (CMRFW0)
10. Hard Ware - Architectural Design and System/Sub-system Design Description (HWCDD)
11. Hardware Components Description (HWDDD)
12. Product Drawings and Associated Equipment Lists (HWPD0)
13. Commercial Off-The-Shelf Manuals (ILSCOTS0)
14. Integrated Logistics Support Plan (ILSISUP0)
15. Logistic Support Analysis Record (ILSLSAX0)
16. Packaging and Transportation Plan (ILSPACP0)
17. Recommended Provisioning Lists (ILSSAIP0)
18. Technical Manuals (ILSTM0)
19. Training Plan (ILSTRAP0)
20. Trainee and Training Course Completion Report and Certificates of Training (ILSTRCR0)
21. Training Documentation (ILSTRMT00
22. Contractor’s Progress, Status and man-Month Report (PMBCPR0)
23. Conference Agenda (PMCONFA0)
24. Conference Minutes (PMCONFM0)
25. Programme Management Plan (PMMANP0)
26. Master Integrated Program Schedule (PMMIPS1)
27. Contract Work Breakdown Structure (PPBCWBS0)
28. Interface Requirements Specification (PSIRS0)
29. Software Requirements Specification (PSSRS0)
30. Quality Assurance Plan (QMBQAP)
31. Reliability, Availability, Maintainability and Testability Programme Plan (RAMPROP0)
32. Reliability, Availability, Maintainability, Testability and Safety Programme Status Report (RAMSTAR0)

33. Site as Built Drawings (SPABD)
34. Site Installation Engineering Plan (SPIEP)
35. Site Adaptation Requirements Drawings (SPSARD)
36. Site Inspection Reports (SPSIR)
37. Site Survey Reports (SPSSR)
38. Interface Design Description (SWIDD0)
39. Software Architecture Description (SWSAD0)
40. Software Design Description (SWSDD0)
41. Software Development Plan (SWSDP0)
42. Systems Engineering Management Plan (SWSEMP0)
43. Software Product Specification (SWSPSPB0)
44. System/Subsystem Design Description (SWSSDD0)
45. Software Version Description (SWSVD0)
46. Test Description (TETD)
47. Test Plan (TETP)
48. Test Report (TETR)
49. Test Readiness Review Documentation (TETRRD)
50. Test Tool Software user's Manuals (TETSUM)

1. CM FUNCTIONAL AND PHYSICAL AUDIT PLAN (NCIA-DI-CMAUDITP)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title CM FUNCTIONAL AND PHYSICAL AUDIT PLAN	2. Identification Number NCIA-DI-CMAUDITP	Based on N/A
3. Description/Purpose 3.1. The DID provides a generic outline to be used to produce a Functional and Physical Configuration Audit (FCA/PCA) Plan. 3.2. The Audit Plan may be tailored by the Contractor to the extent needed to cover HWCIs or Systems if such is specified.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO- CM	
6. Application/Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

(1) The CM Functional and Physical Configuration Audit Plan shall be prepared in accordance with the requirements of Purchaser CMRD.

(2) The following outline should be used in order to prepare Configuration Audit Plans.

8.1. Purpose

(1) This section states the purpose and objectives of the audit, it should identify the contract and SOW references, the system, the Configuration items to be audited and tentative dates as indicated in the MIPS.

8.2. Reference Documents

(1) This section should list any relevant document, including their approved dates and dates of any applicable amendments, notices, and revisions, for the audit.

8.3. Required Accomplishments prior to the Audit

(1) This section should identify specific events that have to be accomplished to ensure a successful audit.

a. The FCA/PCA date should be established at least 60 days prior to the audit. This date should be coordinated with the Purchaser. Date:_____

b. The designated representative should formally solicit support from the concerned disciplines and functional experts. This should be accomplished once a specific date is approved. Date letters sent: _____

c. The contract should be reviewed at least 45 days prior to the audit to determine what requirement are on contract, what data items are due prior to FCA and PCA; whether they require approval actions, and the status of delivery/approval of the data. Date of Review:_____

d. The Contractor should provide a matrix for each CI at the FCA that identifies the requirements of sections three and four of the specifications; including a cross reference to the test plan, test

procedures, and test report, results of demonstrations, inspections, and analyses for each requirement; and identifying each deficiency by deficiency report number.

e. All team members should be identified by Name at least three weeks prior to the audit.

f. A preparatory meeting should be held at least one week before the scheduled audit. At this meeting team members will be assigned specific responsibilities to be accomplished at the FCA/PCA.

g. The audit shall be conducted using MIL-STD-973 or MIL-HDBK-61A as guidance. Minutes, Checklists, Action Item Tracking Forms and Audit Reports are to be provided by the Contractor in the defined format.

h. Explain how action items will be tracked for completion.

8.4. Audit Schedule

(1) This section shall provide a detailed audit schedule.

8.5. HW Configuration Items to be audited

a. Part number;

b. NSCM;

c. Nomenclature;

d. Drawing Numbers and Revision;

e. Specification Number and Revisions;

f. Other applicable identifiers.

8.6. Documentation to be audited

a. Engineering Drawings and Revisions;

b. Applicable Specifications and Revisions;

c. Engineering Change Proposals;

d. Test Plans, Test Environment Specification, Test Descriptions and procedures and Test Reports;

e. Operating and support manuals;

f. Configuration documentation release procedures;

g. Quality assurance documentation and procedures;

h. Request for Deviations/Waivers;

i. Manuals, lists.

8.7. Reference Material

a. System engineering technical data;

b. Trade study results;

c. Risk analysis results;

d. Reports;

e. Hardware;

f. Deviation/Waiver lists;

g. Minutes of prior reviews.

8.8. Scope of the Audit

a. Summary of the hardware contractual requirements against which the audit will be conducted as specified in work statements, specifications and approved plans;

b. Outline of the proposed audit procedure for each item to be audited.

8.9. Location(s) and Date(s)

(1) This section shall describe the locations and tentative dates for the audits.

8.10. Team Composition

a. Contractor representatives and their function in the audit;

b. Purchaser participants and their function in the audit.

8.11. Administrative Requirements

a. Description of facilities and support equipment to be available;

b. Administrative support to be available;

c. Security requirements.

8.12. Reports

a. A formal FCA/PCA report with a copy of the minutes of the audit, in accordance with CDRL 127 CMAUDITR0 will be established by the Contractor NLT 8 days after the audit;

b. A final status letter will be provided to the Purchaser when all actions have been completed.

8.13. Configuration Audit Process Flowchart

(1) This section provides a generic process flow chart of the Configuration audits.

2. CM FUNCTIONAL AND PHYSICAL AUDIT REPORT (NCIA-DI-CMAUDITR)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title CM FUNCTIONAL AND PHYSICAL AUDIT REPORT	2. Identification Number NCIA-DI-CMAUDITR	Based on N/A
3. Description/Purpose The DID provides a generic outline to be used to produce a Functional and Physical Configuration Audit (FCA/PCA) Report.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/AIR C2 PO - CM	
6. Application/Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Completion of the FCA/PCA

(1) After completion of the FCA/PCA, the Contractor shall publish and distribute copies of FCA/PCA minutes.

8.2. Format and Content of the Minutes

(1) The format and content of the minutes are to be defined by the Contractor in coordination with the Purchaser after contract award.

3. CONTRACTOR CONFIGURATION MANAGEMENT PLAN - (NCIA-DI-CMCCMP)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title CONTRACTOR CONFIGURATION MANAGEMENT PLAN	2. Identification Number NCIA-DI-CMCCMP	Based on US-DOD-DI-CMAN-80858A
3. Description / Purpose 3.1. The Contractor Configuration Management (CM) Plan describes the Contractor's Configuration Management program, how it is organised, how it will be conducted, and the methods, procedures and controls used to assure effective configuration identification, change control, status accounting, and verification and audits of the total configuration, including hardware, software and firmware. The principal use is to provide the Purchaser a basis for review, evaluation, and monitoring of the CM program and its proposed components.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO - CM	
6. Application / Interrelationship 6.1. This DID contains the format, content and preparation instructions for a data item resulting from work tasks described in the VOICE LOOP Project CMRD.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Reference documents. The applicable issue of the document cited herein, including its approval date and the date of any applicable amendments, notices, revisions, shall be as specified in the contract.

8.2. Format and Structure of the document. The document structure shall be in accordance with STANAG 4427 – ACMP1.

4. CONFIGURATION STATUS ACCOUNTING DATA (NCIA-DI-CMDATEX)

<table>
<tr><td colspan="3">NCI AGENCY DATA ITEM DESCRIPTION</td></tr>
<tr><td>1. Title
CONFIGURATION STATUS ACCOUNTING DATA</td><td>2. Identification Number
NCIA-DI-CMDATEX</td><td>Based on</td></tr>
<tr><td colspan="3">3. Description / Purpose
3.1. The CMDATEX Schema is used to define the Configuration Status Accounting (CSA) data exchange schema to be used between the contractors an purchasers CSA System</td></tr>
<tr><td colspan="2">4. Not Used</td><td>5. Office of Primary Responsibility
NCI Agency/Air C2 PO -CM</td></tr>
<tr><td colspan="3">6. Application / Interrelationship
6.1. This Data Item Description (DID) contains the format, content and preparation instructions for the data exchange of Configuration Status Accounting data between the Contractor and Purchaser.</td></tr>
<tr><td colspan="3">7. Applicable Forms
N/A</td></tr>
</table>

8. Preparation Instructions

8.1. Configuration Status Accounting Data covers a wide range of data elements including but not limited to Requirements, Configuration Items (CIs) and their configurations, Configuration Baselines, ECPs, PTRs, RFD/W, Contract Documentation, Configuration Documentation, Configuration Verification and Audits Action Items and Plans and Reports.

8.2. A detailed schema definition of all relevant data elements, to be provided under this DID, based on the purchaser schema and STANAG 4661, will be described in the contractors CMP.

5. ENGINEERING CHANGE PROPOSAL - (NCIA-DI-CMECP)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title ENGINEERING CHANGE PROPOSAL	2. Identification Number NCIA-DI-CMECP	Based on US-DOD-DI-CMAN-80639A
3. Description / Purpose 3.1. An Engineering Change Proposal (ECP) includes both engineering change and the documentation by which the change is described and suggested. 3.2. An ECP describes changes to configuration items and associated configuration documentation that are affected by the proposed engineering change.		
4. not used	5. Office of Primary Responsibility NCI Agency/Air C2 PO - CM	
6. Application / Interrelationship 6.1. This Data Item Description (DID) contains the format, content and preparation instructions for Class 1 and Class 2 engineering changes as described in the VOICE LOOP Project SOW CMRD. This DID is used in conjunction with a Notice of Revision (NOR).		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Reference Documents. The applicable issue of any documents cited herein, including their approval dates and dates of any applicable amendments, notices and revisions, shall be as specified in the contract.

8.2. Form and content.

(1) The Engineering Change Proposal form and content shall be in accordance with STANAG 4427 ACMP-3 and ACMP-7 Annex A.

6. ENGINEERING RELEASE RECORD - (NCIA-DI-CMERR)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title ENGINEERING RELEASE RECORD	2. Identification Number NCIA-DI-CMERR	Based on US-DOD-DI-CMAN-80463
3. Description / Purpose 3.1. The Engineering Release Record (ERR) is used to officially release all new or revised configuration documentation required to establish the functional, development and product baselines or to update the configuration documentation.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO - CM	
6. Application / Interrelationship 6.1. This Data Item Description (DID) contains the format, content and preparation instructions for the data product resulting from the work task described in the VOICE LOOP Project SOW CMRD.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Reference Document. The applicable issue of any documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be as specified in the contract

8.2. Form and Content. The ERR form shall be as in para 8.3. The content shall be in accordance with the STANAG 4427.

8.3. ERR Form

ENGINEERING RELEASE RECORD (ERR)									
1. ERR No. ERR	**2. DATE**		**3. SHEET OF SHEETS**						
4. ECP No.			**5. EFFECTIVE DATE**						
6. DATA RELEASED OR REVISED									
NSCM **a.**	**DOCUMENT**		**REVISION**		**RELEASE**		**CHANGE**		**OTHER**
	NUMBER **b.**	**TITLE** **c.**	**LETTER** **d.**	**DATE** **e.**	**IR** **f.**	**NAR** **g.**	**CH** **h.**	**CAN** **i.**	**ECP NO.#** **j.**
NATO COMMUNICATIONS AND INFORMATION AGENCY APPROVAL									
7. SUBMITTED BY (Signature)			**8. APPROVED BY (Signature)**						

NCI Agency ERR Form, May 2011

7. SYSTEM REQUIREMENTS ANALYSIS REPORT (NCIA-DI-SRAR)

NCI AGENCY DATA ITEM DESCRIPTION	
1. Title SYSTEM REQUIREMENTS ANALYSIS REPORT	2. Identification Number Based on NCIA-DI-CMRAR
3. Description / Purpose 3.1. The System Requirements Analysis Report describes the analysis results, identifying inconsistent, incomplete, inadequately detailed and non-feasible requirements. 3.2. It further identifies potential problems and risk areas. 3.3. It will contain Contractor proposed changes or refinements.	
4. N/A)	5. Office of Primary Responsibility
6. Application / Interrelationship	
7. Applicable Forms N/A	

8. Preparation Instructions

8.1. Content requirements:

8.1.1. Scope. This section shall be divided into the following paragraphs.

8.1.1.1. Analysis overview. This paragraph shall describe the purpose, scope and method of this analysis.

8.1.1.2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Purchaser stocking activities.

8.1.2. System Requirements Analysis Results

8.1.2.1. Inconsistent Requirements

8.1.2.2. Incomplete Requirements

8.1.2.3. Inadequately Detailed Requirements

8.1.2.4. Non-feasible Requirements

8.1.2.5. Potential Problems

8.1.2.6. Potential Risk Areas

8.1.3. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall contain an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

8.1.4. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendices may be bound as separate documents for ease in handling. Appendices shall be lettered alphabetically (A, B, etc.).

8.1.4.1. Contractor Recommended Changes/Refinements. This appendix shall provide Contractor proposed changes or refinements to resolve issues identified in 8.1.2.1 to 8.1.2.6, where possible.

8. REQUEST FOR DEVIATION - (NCIA-DI-CMRFD)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title REQUEST FOR DEVIATION	2. Identification Number NCIA-DI-CMRFD	Based on US-DOD-DI-CMAN-80640A
3. Description / Purpose 3.1. A Request for Deviation describes a proposed (prior to manufacture) departure from configuration documentation for a specific number of units or for a specified period of time 3.2. A Request for Deviation enables the Purchaser to determine the impact on performance, operational readiness, logistics support or other affected areas.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO - CM	
6. Application / Interrelationship 6.1. This Data Item Description (DID) contains the format, content and preparation instructions for the data product resulting from the work task described in the VOICE LOOP CMRD.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Reference Documents. The applicable issue of any documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be as specified in the contract

8.2. Form and Content. The Request for Deviation form and content shall be in accordance with STANAG 4427 ACMP-3 and ACMP-7 Annex C.

9. REQUEST FOR WAIVER - (NCIA-DI-CMRFW)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title REQUEST FOR WAIVER	2. Identification Number NCIA-DI-CMRFW	Based on US-DOD-DI-CMAN-80641A
3. Description / Purpose 3.1. A Request for Waiver is used to obtain authorisation to deliver non-conforming material which does not meet the prescribed configuration documentation but is suitable for use "as is" or after repair. 3.2. A Request for Waiver enables the Purchaser to evaluate and authorise acceptance of an item not conforming to contractual requirements.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO - CM	
6. Application / Interrelationship 6.1. This Data Item Description (DID) contains the format, content and preparation instructions for the data product resulting from the work task described in the VOICE LOOP CMRD.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Reference Documents. The applicable issue of any documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be as specified in the contract.

8.2. Form and Content. The Request for Waiver form and content shall be in accordance with STANAG 4427 ACMP-3 and ACMP-7 Annex C.

10. CONCEPTUAL DESIGN DRAWINGS AND ASSOCIATED EQPT LISTS (NCIA-DI-HWCDD)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title CONCEPTUAL DESIGN DRAWINGS AND ASSOCIATED EQUIPMENT LISTS	2. Identification Number NCIA-DI-HWCDD	Based on US-DOD-DI-DRPR-81001
3. Description / Purpose 3.1. Conceptual design drawings and associated equipment lists define engineering design concepts. They are used to reduce technical uncertainty as to whether or not a design concept has potential to meet stated military requirements.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO	
6. Application / Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Content. Conceptual design drawings and associated equipment lists shall document an engineering design concept in detail. These drawings shall indicate whether or not a technology is feasible or the design concept has the potential of meeting stated requirements.

8.1.1. The data to be prepared by the Contractor shall include as applicable, the following general information:

- A description by major subheadings of the overall hardware item including all major systems/equipment's.
- General equipment specifications of proposed hardware to include:
- Physical specifications - height, length, width, and weight of each equipment rack, work position, storage container and other equipment.
- Equipment power consumption and heat generation and cooling requirements
- Maintenance access requirements for each equipment rack, communications equipment and work position.
- An initial electrical power utilization plan to include requirements for:
- Location and description of power supply panel
- Input voltages
- Grounding
- KVA required for each equipment rack, cabinet, work position and console and the type of termination to Mains or generator power supply, cable connections, terminal strip, etc.
- Location of power and signal entry points and their respective types and sizes
- UPS (Uninterruptible Power Supply) location, type, size (including duration)
- An initial equipment inter-unit cabling and wiring plan, including shelter cable runs
- A Heat Balance Plan showing personnel and equipment air conditioning requirements, and any special cooling requirements, leading to the determination of the heating and air conditioning requirements, considering the environment in which the equipment will have to operate.

11. DEVELOPMENTAL DESIGN DRAWINGS AND ASSOCIATED EQUIPMENT LISTS (NCIA-DI-HWDDD)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title DEVELOPMENTAL DESIGN DRAWINGS AND ASSOCIATED EQUIPMENT LISTS	2. Identification Number NCIA-DI-HWDDD	Based on US-DOD-DI-DRPR-81002
3. Description / Purpose 3.1. Developmental design drawings and associated equipment lists define engineering design approaches.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO	
6. Application / Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Content. Developmental design drawings and associated equipment lists shall define an engineering design approach in detail. These drawings shall:

- Support the evaluation of the inherent ability of the design approach to meet the stated military requirement and,
- Support the development of prototype hardware for test or experimentation.

8.1.1. The data to be prepared by the contractor shall include as applicable, the following information:

- A detailed description by major subheadings of the overall hardware item including all major systems/equipment's.
- An ergonomic layout plan including detailed layouts (placement) of all equipment racks, work positions, communications equipment, operators' chairs, storage containers, and other equipment, including storage facilities for spares storage.
- An installation layout for each site showing how COMSEC requirements will be met.
- Equipment specifications to include:
  - Physical specifications - height, length, width, and weight of each equipment rack, work position, storage container and other equipment.
  - Equipment rack and work position templates
  - Maintenance access requirements for each equipment rack, communications equipment and work position.
- A lighting plan to include general and special lighting requirements
- A detailed electrical power utilization plan to include requirements for:
  - Location and description of power supply panel
  - Input voltages, frequencies, and tolerances
  - Grounding
  - KVA required for each equipment rack, cabinet, work position and console and the type of termination to Mains or generator power supply, cable connections, terminal strip, etc.
- Location of power and signal entry points, power sockets and their respective types and sizes
- UPS (Uninterruptible Power Supply) location, type and size (including duration)

- Equipment inter-unit cabling and wiring plans, including shelter cable runs, showing how COMSEC requirements will be met.
- A Heat Balance Plan showing equipment air conditioning requirements, and any special cooling requirements. These data shall include:
  - For the Operating area environment the temperature range, relative humidity range and atmospheric pressure
  - For the Equipment air conditioning requirements equipment heat output, location for each equipment rack, cabinet and console and equipment operating and non-operating environmental conditions (e.g., temperature, atmospheric pressure and relative humidity and shall determine the heating and air conditioning requirements).

12. PRODUCT DRAWINGS AND ASSOCIATED EQUIPMENT LISTS (NCIA-DI-HWPD)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title PRODUCT DRAWINGS AND ASSOCIATED EQUIPMENT LISTS	2. Identification Number NCIA-DI-HWPD	Based on US-DOD-DI-DRPR-81000
3. Description / Purpose 3.1. Product Drawings and associated equipment Lists provide engineering data to support competitive procurement and maintenance for hardware. These drawings represent the highest level of design disclosure.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO	
6. Application / Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. General.

(1) Product Drawings and Associated Equipment Lists shall provide the design disclosure information necessary to enable a manufacturer of similar products at the same or similar state of the art to produce and maintain quality control of item(s) so that the resulting physical and performance characteristics duplicate those of the original design. These drawings shall:

- Reflect the end-product at its current level of design maturity.
- Provide the engineering data for Logistics Support products.
- Provide the necessary data to permit competitive acquisition of items identical to the original item(s).

8.2. Product Drawings and Associated Equipment Lists

(1) The Product Drawings and Associated Equipment Lists shall be established in accordance with the requirements of MIL-STD-100.

8.3 The format of the documents shall be in accordance with STANAG 4661.

13. COMMERCIAL OFF-THE-SHELF MANUALS (NCIA-DI-ILSCOTS)

DATA ITEM DESCRIPTION		
1. Title COMMERCIAL OFF-THE-SHELF MANUALS	2. Identification Number NCIA-DI-ILSCOTS	Based on N/A
3. Description / Purpose 3.1. Commercial Off-the-Shelf (COTS) manuals shall include, but not be limited to, the following hardware and software information types: installation, user, programmer, servicing, and maintenance.		
4. Approval Date (dd/mm/yy) N/A	5. Office of Primary Responsibility NCIA/AirC2PO	
6. Application / Interrelationship 6.1. This Data Item Description (DID) is applicable when (existing) COTS manuals are required for Purchaser use during training, system evaluation and testing, operations and maintenance.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. General Requirements

(1) This Data Item Description contains the format and content requirements for Commercial-of-the-Shelf (COTS) documentation. Delivery of COTS shall in no way alleviate the Contractor's obligation to provide data that fully satisfies the contractually defined logistic requirements for all deliverable materiel.

8.2. Component Integration

(1) Where COTS equipment is integrated as part of a system (either with other deliverable COTS equipment, developed equipment, or existing equipment) the Contractor shall:

a. Fully reflect the integration in the system operator and maintenance TMs that are developed and where applicable, into site specific TMs and amendments to existing TMs in accordance with the Contract requirements.

b. Ensure that Contractor developed documentation includes all information necessary for operating the system and equipment, and for performing preventive and corrective maintenance.

c. Provide COTS equipment documentation that meets the contractually defined logistic requirements, but which may, with the Purchaser's agreement be subject to reduced requirements with respect to those applicable for Contractor developed documentation.

(2) Details of reduced requirements and the conditions under which they shall be applied are as follows:

a. If contractual logistic support from the original system/equipment manufacturer is called for in the initial procurement contract, or under later contractual arrangements, and it includes update or renewal of COTS documentation throughout the life of the materiel, the general requirements for copyright and language shall apply. Control requirements shall be applied in full to user/operator information and any maintenance activities not included in the contractual support arrangements.

b. If no such contractual logistic support action is established, any reduced requirements shall be agreed to by the Purchaser only after assessment of COTS implications; for example, the

adequacy of documentation available, impact of modifications, type of COTS materiel, expected amount of amendment action required, etc.

8.3. Stand-Alone Equipment

(1) Where COTS equipment is stand-alone, the Contractor shall provide COTS documentation that meets the contractually defined logistic requirements, but which may, with the Purchaser's agreement, is subject to reduced requirements with respect to those applicable for Contractor developed documentation, as stipulated above.

8.4. COTS Supplemental Material

(1) Basically acceptable COTS manuals may require amendments by preparation of supplemental data to make them fully acceptable for Purchaser use. The supplemental data shall be integrated into the set of DMs that are developed in accordance with the Contract.

14. INTEGRATED LOGISTICS SUPPORT PLAN (NCIA-DI-ILSISUP)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title INTEGRATED LOGISTICS SUPPORT PLAN	2. Identification Number NCIA-DI-ILSISUP	Based on N/A

3. Description / Purpose

3.1 The Integrated Logistics Support Plan (ILSP) combines several documents usually submitted separately. In all cases, the Contractor format is acceptable subject to approval by the Purchaser.

3.2 Consequently, this CDRL will combine the following plans to be described under separate sections.

3.3 Integrated Support Plan: This section describes the Contractor's plans for the management, control, interface, and integration of all elements of the Contractor's Integrated Logistics Support (CILS) programme with the system engineering and design processes.

3.5 Logistic Support Analysis Plan: This section identifies the Contractor's approach and description of how the Logistics Support Analysis (LSA) will be conducted to meet programme requirements as part of the Integrated Logistic Support (ILS) effort.

This LSAP also describes the Contractor's approach to Logistics Support Analysis Record (LSAR) development.

3.6 Technical Manual Publication Plan: This section will prescribe the general procedures, terms and conditions governing the planning, selection, preparation and delivery of Technical Manuals (TMs) required for the operation and maintenance of the system and to support the necessary training.

To describe the Document Type Definitions (DTD) which are required for PLCM-compliant documents constituting the Technical Data Package (TDP).

3.7 The Training Programme Development and Management Plan: This section describes the Contractor's approach to training, milestones, resource requirements, management structure, interrelationships, CALS aspects, and other related tasks required for training development.

3.8 Packaging, Handling, Storage and Transportation (PHST). This section shall include details of the Contractor's proposed bar-coding system and shall give consideration to special handling requirements and other hazards associated with the international transportation of VOICE LOOP items.

4. Not Used	5. Office of Primary Responsibility NCIA / Air C2 PO - ILS

6. Application / Interrelationship

N/A

7. Applicable Forms

N/A

8. Preparation Instructions

8.1. Voice Loop Project SOW ILSC / Integrated Support Plan

8.1.1. Reference documents. None.

8.1.2. General. The ISP shall document the Contractor's plans, organisational structure, procedures and activities to be implemented, followed and performed to ensure that logistics and the logistics elements

influence and interface with system design and other functional areas and to satisfy all supportability criteria of the fielded system. The ISP shall explain the interface of the Contractor's ILS structure and the overall design process with his subcontractors, vendors, and suppliers. The ISP shall also describe the Contractor's approach to LSAR development.

8.1.3. Content.

(1) The following is a minimum list of topics to be included in the ISP:

a. ILS organisation including an organisation chart and identification of significant contract pairing relationships,

b. ILS management positions description, tasks and responsibilities,

c. ILS schedules including a milestone chart identifying the interrelationship between the LSA, the ILS element activities and the significant contract milestones,

d. The method by which the requirements are disseminated to design and associated personnel, subcontractors and suppliers, and the controls and monitoring mechanisms levied under such circumstances,

e. A description of how each of the ILS programme elements shall be conducted to meet the requirements of the SOW. the logistics elements to be addressed shall include:

i. Maintenance planning,

ii. LSA,

iii. Supply support,

iv. Support equipment,

v. Technical data (to include the Technical Data Package, the LSAR, Technical Manuals, and training documentation),

vi. Training development and training support,

vii. Packaging, Handling, Storage and Transportation (PHST).

f. The procedures or methods for identification and resolution of problems, and status tracking,

g. List of reference documents.

(2) The ISP shall describe the following:

h. The interrelationships between the LSA and the other ILS elements, and how these activities are to be integrated within the system design process,

i. The interrelationship between the ILS elements and the Reliability Availability Maintainability and Testability (RAMT) programme,

j. An overview of the Test and Evaluation activities in support of ILS requirements,

k. The interfaces between the ILS programme and, as a minimum, the following programme elements:

i. System Engineering and Design,

ii. Configuration Management,

iii. Quality Assurance,

iv. Programme Management.

8.2. Logistic Support Analysis Plan: This Data Item Description identifies the content of a Logistic Support Analysis Plan (LSAP) resulting from the work task described by subtask 102.2.1 of MIL-STD-1388-1A.

8.2.1. Reference documents.

(1) The applicable issue of the documents cited herein including their approval dates and dates of any applicable amendments, notices, and revisions shall be as specified in the contract.

8.2.2. General.

(1) The LSAP shall document the Contractor's plans, organisational structure, procedures and activities to be implemented to ensure that the LSA process provides a rational, cost and operationally effective baseline for the VOICE LOOP system support. The LSAP shall describe how the LSA process will interface with system design and other functional areas to satisfy the supportability criteria of the fielded system. The LSAP shall also describe the Contractor's selected Logistics Support Analysis Record (LSAR) and its implementation. Specific detail shall be provided on the accommodation of documentation in the LSAR.

(2) The Contractor shall describe his LSAR, identifying the selected system, providing an overview of the development and implementation approach, and describing the integration of data elements in the tables and reports.

8.2.3. Content.

(1) Management structure and authorization. Identify the management structure and describe the responsibility and authority for each LSA support position. Identify significant contract pairing relationships, and describe the associated management tasks, functions and responsibilities.

(2) LSA programme description. Describe how the LSA programme will be conducted to meet the system and logistic requirements contained in the SOW and the Procurement Specifications. Functional / process / data flow diagrams will be used as required to provide graphical illustration of programme relationships. Specifically address the rational in applying LSA to Commercial Off-The-Shelf (COTS) and to Developed Items (DIs).

(3) LSA Tasks. Describe in detail each of the LSA tasks that will be accomplished and how each will be performed. Specifically address the incorporation of LSA on operational support tasks. Identify the major trade-offs to be performed.

(4) LSA Analysis Tools. Identify and describe each of the LSA analysis tools including Failure Modes, Effects and Criticality Analysis (FMECA), Level of Repair Analysis (LORA), sparing analysis and Life Cycle Cost (LCC). Describe the methodology and procedures employed with each type of analysis.

(5) Scheduling. Provide a schedule with estimated start and completion points for each LSA programme activity or task. Schedule relationships with other ILS programme requirements and associated system engineering activities shall be identified. The schedule shall show the progressive development and submission of the LSA Support Plans.

(6) Interface Requirements. Describe how the LSA tasks and data will interface with other ILS activities. This description shall include analysis and data interfaces with the following programmes:

a. Maintenance planning.

b. Supply support.

c. Support equipment.

d. Technical data (to include the Technical Data Package, the LSAR, Technical Manuals and training documentation).

e. Training development and training support.

f. Packaging, Handling, Storage and Transportation (PHST).

(7) Describe the interrelationships between the LSA processes and the Reliability, Availability, Maintainability and Testability (RAMT) programme.

(8) Describe the proposed methodology for validating each of the specified supportability requirements.

(9) Describe the interfaces between the LSA activity and, as a minimum, the following programme elements:

a. System/equipment design,

b. Configuration management,

c. Quality assurance,

d. Human engineering,

e. Standardization,

f. System safety,

g. Programme management.

8.2.4. Work Breakdown Structure (WBS)/LSA candidate list. Describe the WBS identification of items for which LSA will be performed and documented. Provide an LSA candidate list to include the Logistic Support Analysis Control Number (LCN), NATO Stock Number (NSN), item name, NATO Supply Code of Manufacturers (NSCM), part number and applicable selection criteria. The list shall include all items recommended for analysis, items not recommended and the appropriate rationale for selection or non-selection.

8.2.5. LSA numbering system. Explain the LCN system to be used.

(1) Design requirements dissemination.

(2) Describe the method by which supportability and supportability related design requirements are disseminated to designers and associated personnel.

(3) Describe the method by which supportability and supportability related design requirements are disseminated to subcontractors and the controls levied under such circumstances.

8.2.6. Purchaser Furnished Data (PFD). Identify the Purchaser data to be furnished to the Contractor

8.2.7. LSA Data Updates and Validation. Describe the procedures for updating and validating of LSA data to include configuration control procedures for LSA data.

8.2.8. Purchaser/Subcontractor/Vendor furnished equipment/material. Describe the LSA requirements on Purchaser furnished equipment (PFE) and subcontractors/vendor furnished material including end items of support equipment and special-to-type equipment.

8.2.9. Status and control procedures. Describe the procedures to evaluate the status and control of each task, and identification of the organizational unit with the authority and responsibility for executing each task.

8.2.10. Deficiency controls. Describe the procedures, methods and controls for identifying and recording design problems or deficiencies affecting supportability, corrective actions required, and the status of action taken to resolve the problems.

8.2.11. Data collection. Describe the data collection system to be used by the Contractor to document, disseminate and control LSA and related design data.

8.2.12. LSAR Automatic Data Processing (ADP) system. Describe the LSAR ADP system to be used including the validation status when independently developed LSAR ADP software is recommended. Describe the process/procedures for providing the Purchaser with the LSAR and LSA data updates.

8.2.13. Design review procedures. Describe the design review procedures which provide for official review and control of released design information with LSA programme participation.

8.2.14. The Contractor shall publish the VOICE LOOP approved list of LSAR Data Element Definitions (DED) as an Annex to the LSAP. The list shall identify whether the DED are unique or modified for the VOICE LOOP Project.

8.3 Technical Manual Publication Plan: This section shall be used for:

(1) The planning of development and provision of technical manuals supporting the system.

(2) The development of DTDs required for PLCM-compliant TDP documents.

8.3.1 Content

(1) The TMPP shall include:

a. A description of the method and process for developing TMs (IETM data, amendments to existing TMs, associated classified data and COTS manuals),

b. A description of how Purchaser personnel will be involved in the preparation of TMs.

c. Methods of utilization of information from logistics support analysis, procedural support data, system analysis, task analysis, maintenance analysis and detailed engineering, development procedural, and test program data,

d. Methods for achieving standardization, i.e., nomenclature, terminology, diagrams, style guide, production guide, and standard operating practices,

e. Use of specifications,

f. Recommended TM support, with suggested specifications for operation, maintenance, and repair of the systems/equipment and with a milestone chart relating TM development to equipment delivery, acceptance and training,

g. TM outline development plan and approval procedures,

h. Preliminary TM development and distribution methods,

i. Validation procedures. References shall be made to the TM Validation Plan,

j. Verification support procedures,

k. Prepublication and in-process review procedures, controls, and schedules,

l. System for storage and retrieval of data and method to prevent duplication of data already developed. This will cover the relationships between the TMs and the Logistic Support Analysis Report (LSAR) and the training documentation,

m. Status reporting,

n. Controls over classified information,

o. Method of incorporating engineering changes and instructions/information furnished by the Contractor for inclusion in TM. The method will include also changes, revisions and supplements to the Purchaser manuals,

p. A statement of the method by which a determination will be made in the following areas:

q. Identification of existing Purchaser TMs that adequately cover the equipment's required by the contract, or can be made adequate through supplements, changes or revisions,

r. Identification of COTS manuals that adequately cover the referenced equipment's or can be made adequate through the preparation of supplements,

s. Identification of equipment's which require new manuals for adequate and acceptable support.

t. Identification of those factors affecting the successful completion of the TM effort, particularly those factors not within the control of the technical publications organization. Examples are source, maintainability and recoverability coding, provisioning conferences, and nomenclature actions,

u. Manual block diagram - A presentation (block diagram, manual tree, flow chart, etc.) of specific manual coverage proposed for the prime article, components, support equipment, and training equipment. The type and numbers of these manuals and their interrelationship shall be indicated. The plan shall include a brief description of the contents of each manual or groups of manuals shown in the graphic coverage presentation. These descriptions shall be keyed to and arranged in the same sequence as the presentation and shall include:

v. References to specific sections of the applicable document (e.g. military specification or standard, STANAG, ISO standard) to indicate the extent of compliance or non-compliance with these requirements,

w. Any special features or innovations of this TM programme,

x. Projected requirements of new presentation techniques based upon peculiarities of system or equipment configurations and maintainability design.

y. Internal and external procedures used to effect concurrent release requirements for: TM changes, affected manuals, hardware and software; checklists; inspection manuals; etc.

(2) This Plan shall also include a work-flow diagram of the structure and the method of TM control.

(3) Support of training. This Plan shall explain how the TM development and validation process shall provide the necessary support to the Purchaser training process. References shall be made to the Training Plan.

(4) This plan shall include IETM distribution media proposals.

8.3.2 Data Modules Requirement List

(1) The Contractor shall develop the Data Modules Requirement List (DMRL) in tabular form (Excel-sheet), one row per DMC. The DMRL shall be constituted by the Identification and Status section of each DM (as defined in the Purchaser provided Business Rules document).

(2) The Contractor shall deliver the first issue of the DMRL together with the TMPP.

8.3.3 Data Modules configuration management

(1) The Contractor shall develop a complete Table of Content (TOC) for the Technical Documentation required under this contract. In tabular form (Excel format). Each row of the TOC shall contain the associated DMC from the DMRL.

(2) The Contractor shall deliver the first issue of the TOC together with the TMPP.

8.4. The Training Programme Development and Management Plan: This section contains preparation instructions for the content and format of the Training Programme Development and Management Plan resulting from the work task specified in the Statement of Work.

8.4.1. Content. The plan shall contain, as a minimum the following:

8.4.2. A descriptive summary of the system/equipment that the training programme is planned to support.

8.4.2. Process Description

(1) A description of the process, involving the Contractor and the Purchaser, that will be employed in planning, developing and acquiring training programme resources for training, in validating and approving the resources and in conducting training. This should include a detailed description of the process through which training requirements will be met, for example by:

a. Analysis of the Customer's training requirements,

b. Interaction with the system development process, in particular:

c. Results of the logistic support analysis,

i. Output of other analysis, design and development activities,

ii. Results of quantitative site manpower decisions,

iii. New job descriptions,

d. The preparation of training objectives,

e. The preparation of course syllabuses,

f. The quantification of training requirements,

g. The breakdown of courses into modules,

h. The scheduling of course modules.

8.4.2.2. A description of the Contractor's training development and training organisation, showing its relationship to the overall contract management, the levels of responsibility, the points of contact with the Purchaser, and the arrangements for monitoring and maintaining training product quality.

8.4.2.3. Identification of any major sub-contractors included in the training programme and their responsibilities.

8.4.2.4. A description of compliance with each task requirement by cross-referencing appropriate tasks and elements in the description of the training system with the items in the Statement of Work.

8.4.2.5. A description of how the Contractor will manage and conduct an incremental validation effort to review training materials, tests and instructional media materials during the training development process.

8.4.2.6. A narrative description of resource requirements, data requirements, procedures, and milestones; and the time phasing of each contractor task included in the training development requirements and their interrelationship to other contractor tasks, including overall system design, development, installation, testing and acceptance.

8.4.2.7. A chart that identifies milestones and time phasing of each task included in the training development requirements.

8.4.2.8. The quality assurance procedures and management process that ensure that all tasks are performed correctly and deliverables meet requirements.

8.4.2.9. Details of software the Contractor proposes to use to develop course material and which will be needed by the Purchaser to maintain the material.

8.4.2.10. Details of how the Contractor will make use of data in the LSAR and Technical Manuals in developing and delivering course material.

8.4.2.11. Details of the Contractor's proposed approach to using Computer-Based-Training (CBT) as an integral part of his training approach.

15. LOGISTIC SUPPORT ANALYSIS RECORD (NCIA-DI-ILSLSAX)

DATA ITEM DESCRIPTION		
1. Title LOGISTIC SUPPORT ANALYSIS RECORD	2. Identification Number NCIA-DI-ILSLSAX	Based on N/A
3. Description / Purpose 3.1. This DID is used for automated exchange/delivery of Logistic Support Analysis Record (LSAR) data to the Purchaser. 3.2. This DID is used as well to document Logistic Support Plan (LSP), Provisioning Technical Documentation (PTD) and Support Equipment Recommendation Data (SERD).		
4. Approval Date (dd/mm/yy) N/A	5. Office of Primary Responsibility NCIA/Air C2 PO -ILS	
6. Application / Interrelationship 6.1. This DID contains the format and content preparation instructions for the LSAR data exchange/delivery.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Format.

(1) The data element field formats shall be i.a.w. the LSAR Data Element Requirements, Annex G to the SOW. The delivery format for any added data elements required for DSE VOICE LOOP project will be agreed at the Logistic Guidance Conference.

(2) The media for distribution of the LSAR data shall be decided at the Logistic Guidance Conference.

8.2. Content.

(1) Support and support related engineering and logistic data shall be provided i.a.w. Annex G to the SOW.

(2) The definition of LSAR data elements shall be as specified in Annex G to the SOW.

(3) As a minimum the LSAR data elements and relational tables shall ensure the availability, consistency and integrity of information for the following:

a. Operations and Maintenance,

b. Reliability, Availability, and Maintainability,

c. Task Inventory, Task Analysis, and Personnel,

d. Support Equipment and Material,

e. Provisioning.

(4) Additionally, the LSAR shall contain all data required to establish the LSA Support Plans (LSP), Provisioning Technical Documentation (PTD) and Support Equipment Recommendation Data (SERD).

(5) The Contractor shall provide as an annex to this document the LORA support data required through the SOW.

a. For each LORA analysis, provide a listing of the input parameters and a summary of the results including any sensitivity analysis;

b. Format of delivery of the LORA support data will be subject to Purchaser approval.

16. PACKAGING AND TRANSPORTATION PLAN (NCIA-DI-ILSPACP)

DATA ITEM DESCRIPTION		
1. Title PACKAGING AND TRANSPORTATION PLAN	2. Identification Number NCIA-DI-ILSPACP	Based on N/A
3. Description / Purpose 3.1. The Packaging and Transportation Plan provides information required to monitor and evaluate the development of the Contractor's planning for packaging, handling, storage and transportation of any equipment item. The plan will also address the radar system Equipment Group transportability considerations.		
4. Approval Date (dd/mm/yy) N/A	5. Office of Primary Responsibility NCIA/Air C2 PO - ILS	
6. Application / Interrelationship 6.1. Related DID is NCIA-DI-ILSSAIP (RECOMMENDED PROVISIONING LISTS) that includes the Packaging, Handling, Storage and Transportability Summary.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Reference documents.

(1) The applicable issue of the documents cited herein, including their approval dates and the dates of any applicable amendments, notices, and revisions, shall be as specified in the contract.

8.2. Format.

(1) Contractor's format is acceptable subject to Purchaser's approval.

8.3. Content

(1) Performance Requirements of Packaging. Describe applicable shipping, handling, and storage environmental requirements for the packaged item as defined in the Statement of Work (SOW).

(2) Identification. Describe standard and special marking requirements for packaging as defined in the SOW.

(3) Packaging Concept. Describe the packaging concept necessary to fulfil the requirements of the ILSC in the SOW.

(4) Packaging Programme Schedule and Data Sequence. Detail the packaging development schedule (i.e., packaging plan, packaging design, prototype development and fabrication, inspection and testing, etc.) including the data development sequence as a function of time.

(5) Bar-Coding System. Detail the bar-coding system (printing, reading and LSAR data base facilities) as specified in the SOW and how it will be implemented.

(6) Transportation Management Requirements. Detail the following:

- All special routes, by primary and alternative modes, for major categories of items and any problem items (overweight, outsized, hazardous, sensitive, classified etc.),
- The Contractor's offices of primary responsibility for unusual or special transportation matters (to include office designation, position title, office phone, and name when appropriate),
- The port of entry,
- Procedures to be used for the notification of shipments to the Purchaser.

(7) Transportation requirements for the deployment of the Equipment Groups.

17. RECOMMENDED PROVISIONING LISTS (NCIA-DI-ILSSAIP)

DATA ITEM DESCRIPTION		
1. Title RECOMMENDED PROVISIONING LISTS	2. Identification Number NCIA-DI-ILSSAIP	Based on N/A
3. Description / Purpose 3.1. This report provides the recommended quantities of spare parts, consumables and tools and test equipment for each radar site (organizational maintenance level). The list is also used to document changes to the RPL after initial submission. 3.2. This report provides also information critical to the Packaging, Handling, Storage, and Transportation (PHST) of spare parts, Tools and Test Equipment (TTE) and consumables of the Voice Loop system. It may also include environmental and hazardous material information imperative for safe handling, storage and transportation if required.		
4. Approval Date (dd/mm/yy) N/A	5. Office of Primary Responsibility NCIA/Air C2 PO - ILS	
6. Application / Interrelationship 6.1. This Data Item Description (DID) contains the format and content preparation instructions for the Logistic Support Analysis Record (LSAR) report required by Appendix B of MIL-STD-1388-2B on the provisioning requirements. 6.2. This DID specifies the Provisioning Technical Documentation (PTD) that is required. 6.3. The requirements for data related to Packaging Handling Storage and Transportability Summary of spare parts, Tools and Test Equipment and consumables of the system have been included in this DID.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Reference documents

(1) The applicable issue of the documents cited herein, including their approval dates and the dates of any applicable amendments, notices, and revisions shall be as specified in the contract.

8.2. Format

(1) The report shall be in the Contractors format, subject to Purchaser approval. The report is generated for each site and shall consist of three provisioning lists as follows:

a. Part 1 - Recommended Spare Parts List (RSPL): A list of all recommended spares and repair parts, which includes identification information, recommended quantities and provisioning data, for each item, for cataloguing purposes. It shall include the Original Equipment Manufacturer's Part Number. The list should be generated for each radar system (organizational maintenance level).

b. Part 2 - Recommended Consumable Items List (RCIL): This list contains required quantities for 90 days usage for both technical and non-technical consumables;

c. Part 3 - Tools and Test Equipment List (TTEL): A listing of support equipment required to inspect, test, calibrate, service, repair or overhaul an end item. The list should be generated for each radar system (organizational maintenance level).

d. Part 4 - Material Change Notice (MCN): Material change information for provisioning purposes is required for each Purchaser approved design or material change occurring after initial issue of the RPL;

e. Part 5 – A report based on 1388-2B reports and written Contractor recommendations for the Packaging Handling Storage and Transportability Summary of spare parts and consumables for all sites.

f. The Contractor shall use a commercially available spares modelling tool for RSPL, TTEL and RCIL compilation. Any alternative proposal shall be subject to Purchaser approval.

8.3. Content

(1) The report shall be based on the data requirements of LSA report LSA-036, SOW Annex G, LSAR Data Requirements Form. The required data fields for each list are identified under the relevant column heading.

(2) The RPL and MCN lists shall be based on the data requirements of LSA report LSA-036, SOW Annex G, LSAR Data Requirements Form. The required data fields for each list are identified under the relevant column heading.

(2) The MCN list shall identify the change authority reference and shall identify both the original item and provide the required documentation of the new, deleted or changed data.

(3) The MCN list shall identify the change authority reference and shall identify both the original item and provide the required documentation of the new, deleted or changed data.

(4) On Contractor request, guidance for reports content and templates can be given by the Purchaser, as well as some examples.

(5) The PHST summary shall provide the following data:

a. Part I of this report shall provide the PHST data for all sites. The report shall be based on the data requirements of the LSA report LSA-25, Ref MIL-STD-1388 2B, Annex B, and Figure 14. The report shall include all data fields for those data elements required by the Purchaser as indicated by the SOW, Annex G, and LSAR Data Requirements Form. The report shall also include the following data element selections:

ADDITIONAL PACKAGING LSAR DATA REQUIREMENTS DATA ELEMENT TITLE	**DED**	**CODE**
NATIONAL STOCK NUMBER (NSN)	253	----------
SHELF LIFE	377	SHLIFEHA
SHELF LIFE ACTION CODE	378	SLACTNHA
SPECIAL MATERIAL CONTENT CODE	395	SPMACCHA

Table 8.3.-1 Data Element Selections.

b. Part II of this report shall provide the transportability data summary. The report shall be based on the data requirements of LSA report LSA-85, Ref MIL-STD-1388 2B, Annex B, Figure 14. The report shall include all data fields for those data elements required by the Purchaser as indicated by the SOW, Annex G, LSAR Data Requirements Form.

c. Part I and II of PHST summary shall include written recommendations for those spares and tools that require specific Packaging, Handling, Storage or Transportation

18. TECHNICAL MANUAL CONTENT REQUIREMENTS (NCIA-DI-ILSTM)

DATA ITEM DESCRIPTION		
1. Title TECHNICAL MANUAL CONTENT REQUIREMENTS	2. Identification Number NCIA-DI-ILSTM	Based on N/A
3. Description / Purpose 3.1. This DID details the technical content requirements for the Technical Manuals to be used in the operation and maintenance of the radar systems and the radar remote segments.		
4. Approval Date (dd/mm/yy)	5. Office of Primary Responsibility NCIA/Air C2 PO -ILS	
6. Application / Interrelationship 6.1. This Data Item Description shall be used in conjunction with the Purchaser provided Business Rules and the NSPA TM Guidelines (NAMSA TME-2506).		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. General Requirements for Content

8.1.1. Information Types

(1) This Data Item Description is applicable to the development of TMs for Organizational Maintenance (maintenance levels 1 and 2), Intermediate Maintenance (maintenance level 3) and Depot Maintenance (maintenance level 4).

(2) In principle TMs shall contain information to the level required for personnel who have been basically trained for systems and equipment similar to that covered by the TM.

(3) (System operator and system manager information shall be considered an integral part of the Organizational level data.

(4) This Data Item Description also details the content requirement for a radar evaluation manual.

8.1.2. Reference Information

(1) Information included in official service textbooks, standard works and general publications covering basic principles, theory, and standard procedures shall be excluded; cross-references shall be made to such documents where necessary. Such cross-references shall be readily understandable and clearly identifying the document, including the amendment state when necessary.

8.1.3. Detailed Procedures

(1) Detailed procedures (for example, for installation/removal, assembly/dismantling) shall be provided for all maintenance tasks which are not immediately obvious.

8.1.4. Descriptive Details

(1) Functional or constructional details shall be provided to support the operation, handling and authorized maintenance.

8.1.5. Text and Illustrations

(1) Text shall be clear and concise, in a simple and direct sentence form. Descriptive writing shall be in the third person, active voice and indicative mood; instructions shall be in the second person, active voice and imperative mood. Reference shall be made to AECMA PSC/85/16598 for guidance in presenting information in a clear consistent style, easy to understand by international users. Illustrations shall be provided wherever information can be presented more clearly by illustration than

by text, unless the information can be assimilated easily from text alone and text offers a significant saving in cost. An illustration can often be prepared to serve more than one purpose, to support, for example, assembly/dismantling procedures, description, and a parts list.

8.1.6. Terminology, Symbols, Signs and Abbreviations

(1) Unless otherwise specified, the latest editions of and amendments to relevant standards such as NATO, international and national standards shall be used for terminology, symbols, signs, abbreviations and in the preparation of diagrams. The first reference to an item of materiel shall be by the nomenclature adopted for official NATO identification purposes. Thereafter, less formal terminology may be adopted where the context makes this more clearly understood by the reader; such terminology shall be consistent throughout the publication on given materiel.

8.1.7. Units of Measurement

(1) Measurements shall be expressed using the International System of Units (SI). In the case where non-SI measuring devices are fitted to or used in conjunction with the materiel, the non-SI readings shall be shown first followed by the SI equivalent contained in brackets. Tolerances shall be expressed in unit values not as percentages.

8.1.8. Petroleum, Oils and Lubricants

(1) These products shall, wherever possible, be referred to by their service designations throughout the publication. The equivalent NATO code numbers shall be listed. Refer to **NSPA document TME-10-9900**, for guidance. This document will be provided to the Contractor during the First Progress Meeting.

8.1.9. Cross Reference

(1) Cross-references to authoritative documents such as national standards and STANAGS (Standardized NATO Agreements) are acceptable provided such documents are known to be available through normal service channels.

8.1.10Warnings, Cautions and Notes

(1) In procedural data, warnings shall be presented as follows:

WARNING

To denote a danger to personnel of serious injury or death. WARNINGS shall be distinguished by a heading that includes the word "WARNING", for example "LETHAL WARNING" or "WARNING-RADIOACTIVITY", and precede the relevant text: a warning applicable to the materiel in general or to the whole of the publication may warrant inclusion in the preliminary matter of the publication.

(2) In procedural data, cautions shall be presented as follows:

CAUTION

To denote a possibility of damage to materiel but no danger to personnel. A caution shall be preceded by a heading that includes the word "CAUTION" and shall precede the relevant text.

(3) In procedural data, notes shall be presented as follows:

NOTE: To convey, or draw attention to, information that is extraneous to the immediate subject of the text. Notes shall be worded or located to indicate their point of application.

(4) The requirements of this paragraph apply to general text that is not conditioned by established precedent. Where there is an existing regulation or well-established practice in a particular field, which necessitates the use of a pre-determined identification or wording, such requirement shall be over-riding.

8.1.11. Information Structure

(1) Technical information required for each equipment or range of materiel shall be published within specific information categories. Each category is designed to cover specific aspects of equipment

support and operation. A combination of all categories published provides the total support information on the subject materiel, for the maintenance level concerned.

(2) The structure implemented by the Contractor shall ensure that the following categories of information are covered, and include all sub-categories of information detailed in paragraph 0.

a. General Information: (what it is for),

b. Operating Information: (how to operate it),

c. Technical Description: (how it functions),

d. Maintenance: (how to maintain, test, and repair it) (who does what and when),

e. Initial Installation and Preparation for Special Environments: (how to prepare it for use),

f. Illustrated Parts Breakdown (IPB) and related information: (what parts it consists of) (who removes/replaces/repairs what).

(3) The relationship of information categories and sub-categories to individual TM types is detailed in NAPA TME-2506. The Contractor shall implement these structures unless alternative structures are proposed and agreed during the First Progress Meeting.

8.1.12. Uniformity

(1) All TMs of a specific type shall be uniform with respect to the information categories and sub-categories included.

8.2. Detailed Requirements for Content

(1) The following content descriptions apply generically to all maintenance levels. Information included in a specific TM shall be tailored to match the TM type, and the operation and maintenance level to be supported. If a particular information type is not applicable, or the data is contained in another TM the heading shall be retained and the appropriate comment or cross-reference made. The balance between redundant presentation of data and cross-referencing shall give priority to user friendliness based upon frequency of access. Maximum use shall be made of lists, tables, matrices, diagrams etc. for clarity, and ease of access and understanding.

8.2.1. General Information

8.2.1.1. Equipment Supplied

(1) The configuration (layout) of the equipment or the system assembly (component group), as applicable, shall be shown by means of illustrations. Reference designators shall be used in order to facilitate cross-reference to functional block diagrams. The illustrations shall show the equipment in the opened configuration to show the accessibility for maintenance work. In the case of a major system, a listing shall be given of all the equipment belonging to the complete system, in the form of two tables. One table shall show all equipment delivered as part of the system. The second table shall show all the accessories required for the operation of the system but not delivered as an integral part of the system itself.

8.2.1.2. Equipment Data

(1) The following data shall be given as applicable:

a. Dimensions, including dimensioned illustrations

b. Weights

c. Electrical data

d. Optical data

e. Safety clearances

f. Performance data:

- operational performance
- physical handling

- manning requirements
- environmental limitations

g. Hazardous materials data; identification and location of devices containing hazardous materials (e.g. Beryllium).

8.2.1.3. Related Technical Manuals

(1) Each TM shall include a list of all other hardware and software/firmware manuals referenced within it; only those manuals known to be available to the user shall be referenced. A consolidated list shall be provided in the first of a series of manuals.

8.2.1.4. Equipment Description

(1) This shall describe equipment purpose, capabilities and features, and be supported by a list detailing all major components with their reference designators and functional descriptions.

8.2.2. Operating Information

8.2.2.1. General

(1) This category shall contain the information required by personnel to enable them to operate a system or item of materiel in safety and with efficiency, and shall include all actions performed by equipment operators.

(2) Technician information shall include instructions for setting-up and operating, making minor adjustment, performing functional tests and remedial actions within the capabilities and scope of the operator. The information shall detail operator responses to warnings/alerts which could affect safety of personnel, prevent damage to equipment or maintain optimum continued operational performance.

(3) System operator's information shall cover man-machine interfacing applicable to every type of operator position. The information shall permit optimum operator use of all system functions/features/modes, associated with data display, simulation, communications, etc.

8.2.2.2. Operating Instructions

(1) Details shall be given in logical order of the procedure to be followed in preparing, starting and running-up a system, in operating the materiel under normal conditions in each mode, e.g. manual, automatic, or remote control, and in shutting down the materiel under normal and emergency conditions. The procedures shall be itemized in a step-by-step sequence.

(2) A list shall be given of tasks and restrictions, which must be performed or observed, respectively, either prior to, during, or after operation.

(3) The sequence of procedures shall be given for the following events

a. Electrical

b. Electronic

c. Hydraulic

d. Pneumatic

e. Mechanical

f. Software

g. Operational

h. Other

(4) These shall be given in respect of the system, and the individual items of materiel including consequences and effects during operating of control elements (switches, regulators, push-buttons, levers, keyboards, entry panels, touch screens, etc.) and shall be described to the extent required to avoid malfunctions or defects during operation. Performance limits of individual system components shall be indicated with reference to the manual, acoustic and visual control procedures. In short, the possibilities and limitations of operating the materiel shall be summarized.

8.2.2.3. Functional Performance Test of System or Equipment

(1) This category shall detail tests necessary for the operator to verify the functional performance of the system; the tests shall relate to the procedures of individual test phases as well as to rated values and tolerances. The results of such tests can be shown either in the form of a table or as a test diagram and shall include comments.

(2) In as much as functional tests of individual equipment within the system are required, these shall also be described. If these tests require additional software or measuring or test devices, their installation/connection to the equipment, or the system, shall be described. For complex test configurations, illustrations shall be furnished, where appropriate, to define the test configuration.

(3) The test procedures shall include cross references to other paragraphs or sub-paragraphs which deal with the necessary adjustments or troubleshooting procedures if the rated values have not been met.

8.2.2.4. Hazards

(1) The description of each test procedure shall include expected indications of any monitoring devices and warnings of any hazards that may arise through errors in procedure, misuse of the materiel or misinterpretation of the indications of the monitoring or system faults.

8.2.2.5. Safety Regulations And Accident Prevention

(1) Brief and unambiguous instructions must be provided at suitable points of the text to warn users of potentially dangerous situations which may occur or which are likely to occur unless special precautions are taken which are not parts of the functional tests to be carried out prior to initial operation of the equipment/system.

8.2.2.6. System Operator's Information

(1) This information shall cover the requirements of operators at local and remote installations for man-machine interfacing applicable to every type of operator position. The data shall constitute the operator's main handbook and shall explain every possible action that may be taken under the different environmental conditions. Not only shall the proper action be stated, but also an explanation shall be given as to why the action is taken (i.e. what to do, when to do it, and why).

(2) More precisely the data shall:

a. Detail operator responses to warnings/alerts in order to ensure: safety of personnel, prevention of damage to equipment, and optimum continued operational performance,

b. Ensure optimum operator use of all system functions/features/modes,

c. Reflect the level needed to meet the requirements of experienced operators, but structured and presented so as to be suitable also for operator training,

d. Be operator orientated; technical type data shall only be provided to the extent and level needed to facilitate operator assessment, evaluation and subsequent action to ensure best system performance under a given set of conditions.

(3) The following information types shall be included:

a. General Information

- Explanatory text and supporting diagrams to give a clear overview of the scope of operator interaction with the system (what can be monitored, what can be controlled, what means are available to exercise these functions).
- A description of the role of each individual equipment item used by the operator shall be provided, with details of how they are interconnected at the local and remote installations, and between these installations. The interaction and data flow between this equipment and the overall system shall also be provided. The role of associated system equipment groups/sub-groups shall be described to the extent needed for a clear understanding of the monitoring and control that may be exercised by the operator.

b. Controls and Indicators

- Details of the controls and indicators for all displays, auxiliary control panels, and other interfacing devices, used by the operator. Tables and drawings shall identify and locate all controls and indicators, and describe the functions. Cross-referencing shall be provided for the supporting data defined below.

c. Warnings and Alerts

(4) For all message lines (warnings, cautions, faults, errors, status summaries etc.), the following shall be provided:

a. An explanation of the meaning, importance and implication (affects: safety of personnel, integrity of system hardware, operational program, performance).

b. Details of the operator intervention needed to overcome the cause, or limit the effect.

(5) The data shall be presented so as to clearly distinguish fault urgency levels.

(6) The data shall be presented so as to clearly distinguish between faults affecting safety, those affecting equipment, and those affecting operational performance.

(7) Operating Instructions

a. This information shall include tables that list all possible operator functions, and that detail for each function type, the description of the function, the displayed data, and the associated operator entries and limitations. Cross-referencing shall be provided for the supporting data defined below.

8.2.2.6.1. Supporting Data

(1) This shall provide for all interface functions:

a. Explanatory detail (what is the reason for a particular function/feature/mode?),

b. Assessment criteria (when should a particular function/feature/mode be used, what are the alternatives-advantages/disadvantages?),

c. Evaluation criteria (what does displayed information mean, how can it be used?),

d. Specific ‘step-by-step’ procedural data,

e. Examples of assessment, evaluation and action.

(2) The data shall clearly separate and define operational functions and technician functions (test, calibration, and recording).

(3) Emphasis shall be placed upon those man machine interface aspects which impact upon performance.

(4) Data shall be structured and presented with respect to importance (i.e. impact upon operational performance).

(5) Maximum use shall be made of tables, matrices and reproduction of actual displayed data.

8.2.2.7. System Manager Information

(1) This information shall include software user and computer system operator/diagnostic data, and software version descriptions. The combined information shall permit the user to manage and monitor installed hardware configuration and system settings, to install site software and manage site software configurations and local data, and to diagnose and solve system problems.

(2) The software user data shall describe all user interactions within the operational environment. The information shall permit the user to load, initialize, set up, manage, customize, and use software that is accessed by the user and that has an interface requiring on-line user input and interpretation of displayed or hard copy output. Details and procedures shall be provided for all operational and support functions such as data adaptation, diagnostics, system control, emulation, recording, performance monitoring, medium conversion, and data reduction. The particular Computer Software Configuration

Item (CSCI), group of related CSCIs, or software system or sub-system documented shall be clearly identified.

(3) The computer system operator/diagnostics data shall provide detail and procedures for initiating, operating, and monitoring installed computer and peripheral equipment, and for using available diagnostic tools and capabilities. The data shall focus on the computer operations themselves, not on particular software that is executed on the computers.

(4) Software version descriptions shall permit the user to identify and install the exact version of software applicable for a specific site. The information shall identify and provide an overview of the system for which the version is applicable, and shall include an inventory of materials released and software contents, together with details of any unique-to-site adaptation data.

8.2.3. Technical Description

8.2.3.1. General

(1) Information in this category shall be limited to that which is necessary to describe the technical principles of design and operation and the functioning and inter-relation, for both hardware and software/firmware, of the various parts of the system or equipment. Physical construction shall be included where it can be used with advantage to clarify a sequence of operations or to locate the various units and controls.

(2) The technical description shall cover the various component groups (assemblies) and auxiliary equipment with respect to their functional sequence. Description of Built-in Test capabilities and all man-machine interfaces as implemented in the software configuration shall be provided together with all necessary cross referencing between hardware and software documentation. Special features shall be described at the end of the paragraph dealing with the respective component group (assembly).

(3) The description shall also include any information on type-inherent characteristics that must be known to the operator or the repair and maintenance personnel, respectively. It shall be prepared in such a way that easy comprehension without special training is possible. General information e.g. on the operating principles of electronic components etc., shall not be included, or only to such degree as is necessary to understand a type-inherent characteristic. Information concerning materiel, manufacturing procedures, etc., shall not be included.

8.2.3.2. Purpose, Description and Operating Principles of the System, the Equipment or the Accessories

(1) A brief description shall be given of the scope of application of the system, the equipment, or the accessories. This shall include a description of readouts and measurement data provided by the system or the equipment. In the case of a system, all an assembly (component groups) of which it is composed shall be listed including the nomenclature, the type designation, and the parts reference number. An overall view of all assemblies (component groups) within the system shall be provided. There shall also be included a listing of all the accessories necessary to operate and maintain the system, e.g. filling devices, couplings, probes etc.

8.2.3.3. Theory of Operation and Function of The Equipment of System Assemblies (Component Groups), or of Accessories

(1) Theory of operation of the equipment or system assemblies, or of accessories shall be described to the extent necessary for proper operation, maintenance and fault finding. A detailed description of the function as required for maintenance tasks to defined levels shall be provided in the form of extended logic or functional diagrams. Where TM structure requires, diagrams shall be contained in a separate cover, which shall provide the functional drawings and schematics necessary to support the technical descriptions of equipment. Functional diagrams/schematics shall illustrate the overall operation for a specific function involving several equipment units with their interconnections and also for each individual unit. Block diagrams shall be used to explain in a simplified way the overall operation of a unit or of a group of units. Block diagrams, functional diagrams, schematics and wire lists shall provide sufficient detail to enable all cabling, wiring and signals to be traced from diagrams to schematics and vice versa throughout the system without interruption. The requirement to illustrate overall system functioning applies equally to electric, electronic, hydraulic, pneumatic, mechanical or other events.

8.2.4. Maintenance

8.2.4.1. General

(1) Information in this category shall describe each maintenance task that has to be performed. Physical details shall be included to the depth necessitated by the maintenance called for. The maintenance may range from routine day-to-day tasks to extensive repair depending on the needs of the materiel and upon the contractually defined logistic requirements. Inspection standards may also be given.

8.2.4.2. Tasks

(1) Maintenance instructions may be divided into the following groups:

a. Routine maintenance tasks, preventive maintenance,

b. Tests, checks and inspections,

c. Fault diagnosis and correction, troubleshooting.

(2) The instructions for each task shall include details of any fault diagnosis action necessary to locate a fault, details of dismantling and assembly procedures and identification of replacement parts, materials, tools, test equipment and services required. Warnings of possible hazards and information about safety precautions shall be given, particularly for disconnection of services.

8.2.4.3. Preventive Maintenance Tasks

(1) Detailed procedures shall be provided for all maintenance activities on the system, the system assemblies (equipment groups), individual equipment's and accessories, together with all integrated safety and protection devices such as interlocks, EMI, EMP and lightning protection devices, conducted regularly in accordance with a time schedule or after a certain number of hours of operation. The assemblies, equipment's, accessories, and safety and protection devices concerned shall be listed in a table which shall also contain the relevant maintenance tasks and shall indicate the test and measuring devices, measurement accessories, special tools, and consumables required.

(2) The tasks shall detail all steps to be performed, results to be achieved, and the corrective actions to be taken to restore the equipment to the original specification. Where appropriate, reference shall be made to any unscheduled tests, checks, removal/replacement procedures or troubleshooting data.

(3) Task actions shall be clearly identified, and evident in the procedure title, e.g. inspect, check, clean, lubricate, measure, replace, adjust, align, test.

8.2.4.4. Maintenance Schedules

(1) Maintenance schedules in the form of concise statements of the work to be carried out on the material shall be provided.

(2) Maintenance schedules shall include lists of all maintenance tasks, performed at specific intervals of time, distance, running hours or completed operations, which collectively form a complete cycle repeated throughout the working life of the materiel.

(3) To permit minimum maintenance action during periods of Tension and War, specific procedures, or parts thereof, shall be identified as 'Essential', based upon the following definition: 'maintenance actions essential to prevent short term deterioration or failure of the equipment'.

(4) Each schedule shall list all tasks in the order in which they are performed. The mean time to perform each task, the equipment status (on/off), and the trade(s) and number of technicians required, shall be stated. Reference may be made to maintenance instructions for information about methods, procedures, skills, tools and materials.

(5) Each schedule shall detail full requirements for all consumables. Consolidated data concerning consumables for the entire system or equipment shall be provided separately in list form. The list shall include consumable type, part number, manufacturer's identity, Mil. Spec. (or other applicable Spec.), suitable substitute, equipment applicability and quantity per equipment.

(6) For complex materiel, preventive maintenance schedules shall be provided in which tasks are timed and planned sequentially for a team of a given size and capability, and a consolidated index of all preventive maintenance tasks, needed to support the entire system, shall be provided.

8.2.4.5. Standard Preventive Maintenance

(1) The information called up in paragraph 0 and paragraph 0 shall be combined to produce a comprehensive Standard Preventive Maintenance system, in the form of maintenance cards if called for in the Statement Of Work.

8.2.4.6. Test And Measuring Devices, Measuring Accessories, Special Tools

(1) Tables shall be given, one each for test and measuring devices, measurement accessories and special tools required for activities concerned with maintenance. These tables shall also list common test devices such as pressure gauges, continuous flow meters, voltmeters, etc. The table for special tools shall not include common tools such as screwdrivers, pliers, soldering irons etc. The functional application of test and measuring devices, measurement accessories, or special tools shall be stated in a column headed ‘Application’.

8.2.4.7. Troubleshooting

(1) Troubleshooting procedures may be described in the form of a chart. This shall be of a logical structure and contain guidance, or examples, which could facilitate troubleshooting. Where due to a multitude of possible faults, or to the complex configuration of the equipment or the system assemblies, a description of fault detection proves to be too extensive, or too difficult to survey, relevant measurements and their rated values shall be provided. A diagnostics features summary shall be provided to support troubleshooting of all system software/firmware controlled equipment, with descriptions of all Built-in Test capabilities and diagnostic programs. Detailed procedures and information for the use of on-line and off-line diagnostics to identify a malfunction and to isolate a malfunctioning unit shall be included.

8.2.4.8. Disposal Instructions

(1) Disposal instructions for hazardous items shall be incorporated for items such as TR cells, radioactive valves, batteries and cathode ray tubes etc.

8.2.5. Software and Firmware Support

(1) Information in this category shall include software programmer and firmware support data, and software version descriptions. The information shall facilitate the performance of support personnel tasks such as programming the computers on which the installed software is developed or on which it runs, of programming or reprogramming firmware devices in which the software is installed, and identifying the exact version of software delivered to the end users.

(2) Software programmer data shall provide supporting information for the correcting of defects, implementation of refinements, and performance of effective configuration management for all components of the deliverable CSCI, or group of related CSCIs. Reference shall be made to all software requirements, software design, commercial software and other data necessary for the effective performance and documenting of the support activities. The information shall be oriented to experienced programmers, skilled in the appropriate programming languages such that, in conjunction with the referenced data, they are able to produce, test, and integrate software, control the configuration, and generate and document new software builds.

(3) Firmware support data shall describe the firmware devices and the equipment, software, and procedures needed to erase firmware devices, load software into these firmware devices, verify the load process, and mark the loaded devices. Data shall be provided for read-only-memories (ROMs), programmable ROMs, erasable ROMs, and any other firmware devices installed.

(4) Software version description data shall be provided that identifies the exact version of software delivered to the support facility and to each specific site. The information shall identify and provide an overview of each system for which the specific versions are applicable, and shall include an inventory of materials released and software contents, together with details of any unique-to-site adaptation data.

8.2.6. Installation and Preparation for Special Environments

8.2.6.1. General

(1) This category shall be used to describe those events which occur seldom in the normal life of the system or item of material, taking into account the nature of the installed system (e.g. fixed, transportable, mobile).

(2) It shall include such aspects as:

a. Installation, proving and commissioning,

b. Preparation for climatic and operational conditions,

c. Dismantling, preparation for storage, care during storage and preparation for issue,

d. Redeployment,

e. Special instructions for preservation and packaging.

8.2.6.2. Installation, Proving And Commissioning

(1) Detailed instructions shall be given for all hardware and software operations necessary to install the system/materiel and to bring it up to full working condition. All software, tools and test equipment necessary to perform these operations shall be identified. Where necessary, details shall be given of acceptance and inspection tests and performance specifications. External services (air, electricity, gas, water etc.) shall be specified and methods of connection detailed. Precautions to be taken before connecting services shall be emphasized.

8.2.6.3. Preparation For Climatic And Operational Conditions

(1) A description shall be given of all actions necessary for putting the system/materiel into operation or to maintain its operational capability if climatic conditions e.g. temperature, wind speed, drift-ice, air humidity, dust content of the air, etc. exceed specified limits.

(2) When appropriate, to avoid damage to materiel, a list shall be given of environmental influences to which the materiel may not be exposed.

8.2.6.4. Dismantling, Preparation For Storage, Care During Storage And Preparation For Issue

(1) Instructions, including all precautions, for preparing the materiel for storage shall be given with information on the tools, barrier materiel etc. required. A list of storage requirements shall be provided and shall include information on supplies and services needed, periodic inspections, tests, limitations of storage life. Procedures for preparing the materiel for use after storage shall be given.

(2) The information shall differentiate between “packaged” and “unpackaged” storage. For packaged materiel, it is sufficient to refer to the “level of packaging” indicated in the marking. For unpackaged equipment, information on storage conditions shall be provided (e.g. storage in dry places etc.).

8.2.6.5. Redeployment

(1) Complete operational procedures necessary to redeploy the subject equipment must be provided where the equipment has a re-deployable role. All software, tools and test equipment necessary to perform these operations shall be identified. Consideration must be given to the different modes of transportation (i.e. Land, Sea or Air). Advice on subjects such as corrosion protection, pressure differentials, vibration, special equipment, manpower and time requirements must be provided.

8.2.6.6. Special Instructions For Preservation And Packaging

(1) Information shall be given for the preservation and packaging of materiel (component groups), accessories, etc. which are to be shipped for repair. When appropriate, instructions for unpacking and de-preservation are to be included.

(2) Where special measures must be taken for shipment, these shall be included (e.g. tear-down, instructions for handling, etc.).

8.2.7. Illustrated Parts Breakdown (IPB)

8.2.7.1. General

(1) The IPB shall list, and illustrate (by means of exploded views and component layouts), items of materiel which are included in specific components, sub-assemblies, assemblies, or end items. It is

intended as an aid to supply, demand and maintenance. Information concerned with materiel identification shall also be included. The IPB shall have an introduction with an explanation of the presentation, and 'how to use' information.

8.2.7.2. IPB Detail

(1) Each IPB shall contain parts lists to enable users to identify all replaceable items e.g. assemblies, sub-assemblies and other constituent parts forming sub-divisions of the equipment which is the subject of the IPB. Each IPB shall be tailored to match the maintenance level covered by the particular TM. For TMs supporting Intermediate maintenance all constituent parts shall be listed.

(2) Parts list shall be illustrated sufficiently for each item listed to be readily identified and physically located on the equipment. Exploded views shall be included, as necessary, with the main objective to be used by maintenance personnel for localization of parts; they shall not be used as illustration for mounting/dismounting of items of materiel (this topic shall be covered as narrative description, and illustrations where required, within the maintenance procedures).

8.2.7.3. Maintenance Parts Lists

(1) Maintenance Parts lists shall include for each item listed:

a. Figure and Index Number. This is the reference that shall enable each individual item to be readily located on the associated illustration (Fig. No. and Sheet No.). The Figure and Index Number shall appear at the extreme left of the listing and be in numeric sequence.

b. Part Number. This shall indicate the true (original) manufacturer's reference for the item. The format of the part numbers shall be in accordance with the NATO Codification rules.

c. Manufacturer Code. This shall indicate the official NATO reference code such that the manufacturer's name and address can be obtained by referring to the manufacturer's code list.

d. Description. This shall provide all information necessary to enable the user of the IPB to identify a spare part for provisioning purposes.

e. Main Equipment Supplier's Part Number (MES P/N). If such a reference is allocated by the MES it shall be included in the parts list. It may be included in the description column.

f. Units Per Assembly. This shall indicate the number of units required on the Next Higher Assembly (NHA).

g. Usable On Code. This shall indicate the configuration of the end item. When a listing applies to all configurations, no code is indicated.

h. SMR Code. The Source, Maintenance and Recoverability (SMR) code shall be provided for each item listed, and shall indicate the level(s) of maintenance authorized to remove, replace and repair the item.

8.2.7.4. Supporting Data

(1) Parts lists shall be supported by Part Number and Reference Designator indexes, a Part Number cross-reference index, and a Manufacturers Code list. A NATO Stock Number index shall be provided when codification is contractually required.

19. TRAINING PLAN (NCIA-DI-ILSTRAP)

DATA ITEM DESCRIPTION		
1. Title TRAINING PLAN	2. Identification Number NCIA-DI-ILSTRAP	Based on N/A
3. Description / Purpose 3.1. The Training Plan provides detailed proposals for all Contractor provided training, including syllabuses, schedules, prerequisites, evaluations and instructors. 3.2.		
4. Approval Date (dd/mm/yy) N/A	5. Office of Primary Responsibility NCIA/Air C2 PO - ILS	
6. Application / Interrelationship 6.1. This data item description contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement for this data included in the contract and preparation instructions for the content and format of the Training Plan resulting from the task specified in the Statement of Work.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Format. Contractor's format is acceptable subject to Purchaser approval.

8.2. Content requirements.

(1) The Training Plan shall provide information on the training to be provided to Purchaser personnel. The Training Plan shall identify appropriate courses or course modules to provide initial training for all initial site personnel and to meet specific training requirements of other personnel. The Plan shall include the following information for each course:

a. Course description. This shall be a narrative explanation of the subject matter of the specific course. The course format, objectives, and training materials shall be described in sufficient detail to ensure the students will receive required training. A proposed syllabus shall be included, detailing the subject matter to be covered. Any breakdown into modules shall be described.

b. Student prerequisites (if required).

c. Course length (including time devoted to each area of the course).

d. Method of presentation for each element of the syllabus (show breakdown of methods, i.e., lecture, demonstration, hands-on and directed study, computer-based-training (CBT), etc.).

e. Method of evaluation. Establish minimum acceptable written and performance standards and a method of evaluation of directed study. A plan shall be included to show that each student achieved at least minimum course objectives by written and performance tests.

f. List of training material and training equipment required (contractor-provided documents or materials shall be included). This shall include the appropriate standards for electronic data.

g. Description of the minimum capabilities of necessary training equipment, together with the logistic implications of using the training equipment.

h. Recommended maximum size of course. Recommended location of training and type of facility required (i.e., classroom, auditorium, site, etc.)

j. List of measurable objectives (tasks) required by graduates to demonstrate successful completion of course.

k. Proposed schedule for training course.

l. Relationship to related programme milestones and to the equipment delivery schedule.

m. Number of hours of "hands-on" training to be provided to each student.

(2) Where commercial courses are proposed, the Training Plan shall include as much of the information required in 8.2. (1) as is available, together with a justification for using the commercial course.

(3) The Training Plan shall cover all specific contractual training requirements, such as the use of the bar-coding system and software.

(4) In addition to the required information for each course, the Training Plan shall include the proposed training schedule for each system, indicating the courses or modules required for each trainee and optimising the trainees' learning and attendance requirements. The Plan shall also show the overall project training schedule, showing how limited resources (such as instructors, training facilities and training equipment) will be provided for each course.

20 TRAINEE AND TRAINING COURSE COMPLETION REPORT AND CERTIFICATES OF TRAINING (NCIA-DI-ILSTRCR)

DATA ITEM DESCRIPTION		
1. Title TRAINEE AND TRAINING COURSE COMPLETION REPORT AND CERTIFICATES OF TRAINING	2. Identification Number NCIA-DI-ILSTRCR	Based on N/A
3. Description / Purpose 3.1. The Trainee and Training Course Completion Report provides the results and evaluation of training for presentation of each course carried out. Certificates of Training are provided for each trainee who completes the course satisfactorily.		
4. Approval Date (dd/mm/yy) N/A	5. Office of Primary Responsibility NCIA/Air C2 PO - ILS	
6. Application / Interrelationship 6.1. This Data Item Description (DID) contains the preparation instructions for the content and format of the Trainee and Training Course Completion Report and Certificate of Training described in the Statement of Work.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Source documents. The applicable issue of documents cited herein, including their approval dates and dates of any applicable amendments, notices and revisions shall be as specified in the contract.

8.2. Format. The format of the completion report shall utilise Appendix C of MIL-STD-1379 as guidance.

8.3. Content. The Completion Report and Certificates of Training shall contain the following:

8.3.1. Front matter. Content of the front matter shall utilise Appendix C of MIL-STD-1379 as guidance.

8.3.2. Evaluation of Training.

(1) The Evaluation of Training shall consist of the following:

a. Name of Contractor. The name of Contractor shall be the complete name of the Contractor or Sub-Contractor conducting the course.

b. Instructor in charge. The name of the instructor in charge.

c. Course information consisting of:

i. Course title.

ii. Location of the course.

iii. Duration (with dates) of the course.

iv. Course objective.

v. System/equipment/software covered by the course.

vi. Training material used to conduct the course.

vii. Grading system for the course (e.g. pass levels, distinction levels).

viii. Total number of trainees.

ix. Number of trainees achieving each grade.

d. Trainees information consisting of:

i. Name of each trainee.

ii. Rank/grade of each trainee.

iii. Branch of service/agency and parent unit of each trainee.

iv. Attendance information for each trainee.

v. Individual and cumulative total grade in quantitative terms for each trainee.

vi. Instructor's evaluation of each trainee.

vii. Any specific certification required following training (e.g. for test operators).

e. Instructor evaluation of training consisting of:

i. Considerations about course material, course presentation, value of training aids, tools and equipment, remarks and recommendations of overall course.

ii. All problems encountered during the conduct of the course, such as students without agreed prerequisites, deficient subject coverage, equipment failures and documentation deficiencies. Recommendations for any supplemental training which may be required shall also be included.

8.3.3. Certificate of Training.

(1) A Certificate of Training shall be completed for each trainee who satisfactorily completes the conducted course. The certificate shall contain, as a minimum, the following:

a. Name of organisation conducting the training.

b. Title of the course.

c. Subject matter, if not apparent from the course content. This may be in the form of the course high level objectives.

d. Location where the course took place.

e. Dates of the course.

f. Rank/grade of trainee.

g. Parent unit of trainee.

h. Statement of satisfactory (or better) completion of the course.

i. Any specific certification resulting from the course.

j. Signature and name of responsible training officer.

8.3.4. Purchaser Approval.

(1) Purchaser approval will indicate that the course(s) described in the document have been completed satisfactorily.

(2) Purchaser approval of the document will not be based on its content alone i.e. Purchaser Observer(s) reports will be taken in to consideration.

21. TRAINING DOCUMENTATION (NCIA-DI-ILSTRMT)

DATA ITEM DESCRIPTION		
1. Title TRAINING DOCUMENTATION	2. Identification Number NCIA-DI-ILSTRMT	Based on N/A
3. Description / Purpose 3.1. Provides the minimum documentation required to conduct and maintain the project training programme. 3.2. Training documentation includes data in electronic media and in hardcopy as appropriate.		
4. Approval Date (dd/mm/yy) N/A	5. Office of Primary Responsibility NCIA/Air C2 PO - ILS	
6. Application / Interrelationship 6.1. This DID contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement as delineated in the contract.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. General.

(1) The training documentation shall be suitable for use following the approved methods, such as formal classroom, interactive, self-directed, Computer-Based-Training (CBT), hands-on training, etc. The documentation shall contain sufficient instructions to guide students through all specified training. Existing manufacturer's training and service manuals, preferably in electronic format, can be used in so far as they meet specified requirements. The training documentation should be for students with the prerequisite knowledge of similar equipment or relevant theory, use of general electronic test equipment and a basic knowledge of hand tools. Training documentation stored in an electronic database shall meet the requirements set forth in the contract Statement of Work and Procurement Specification(s), ensuring that the areas discussed below are accessible and completely detailed. Instructions shall be provided on how to electronically access database information.

8.1.1. Format.

(1) Contractor's format is acceptable subject to Purchaser approval. However, the material for each course or module shall include a table of contents. This shall include a listing of all major subjects and the page number or image on which they appear or instructions on how to electronically access the data.

(2) The format of the training material shall be consistent throughout the complete training programme.

8.2. Contents.

(1) For each course, the training documentation shall consist of course documentation for trainees and instructor material to support a training programme. The training documentation shall cover as a minimum, all the topics identified in the course syllabuses included in the Training Plan.

8.2.1. Course Material

(1) The course material shall be designed to guide the students in obtaining the required skills through the training programme concerned. The course material shall provide adequate information about the sections listed below. Relevant sections shall include a number of exercises to evaluate student understanding of information provided in that section. Each section may refer the student to other supplemental written or audio-visual material (e.g. transparencies, 35 mm slides, charts, VHS format video cassettes, DVD/CD-ROM or other commercially available electronic medium in the appropriate

NATO/European format), which shall be included in the package. Additional topics and material can be added. Course material shall include the following sections, as appropriate:

a. Required Material. Data indicating all equipment and material required by the student, including test equipment, audio-visual material, tools, and supplies,

b. General information about the system, software or equipment for which the training will be carried out,

c. Installation and preparation instructions,

d. Operating information, covering all personnel who interface with the system concerned, during all phases of its use,

e. Technical description,

f. Hardware Maintenance, covering routine inspections and adjustments, preventive maintenance and corrective maintenance (including diagnostics, troubleshooting and repair) at relevant maintenance levels,

g. Software support operations,

h. Reference data.

8.2.2. Instructor Material.

(1) Guidance for instructors shall be provided. The guidance shall include:

a. Student exercises and all answers and other marking guidance,

b. Descriptions of points where instructor involvement, observation, or action is necessary or recommended to ensure safety or verify student performance,

c. Instructional malfunctions to be introduced by the instructor and diagnosed and repaired by the student. A minimum of five malfunctions is required for each separately identifiable system, module or circuit. The malfunctions should approximate as nearly as possible, to problems likely to occur, and may consist of a combination of system maladjustments and bad components. A listing of malfunctions will be given which shall include:

i. Action required by instructor to install malfunction; exact component or module to replace or maladjustment to make,

ii. Description of symptom caused by malfunction,

iii. Test equipment and tools required to detect and isolate the malfunction or procedures required to recover software functionality,

iv. Suggested allowable time for student to diagnose malfunction.

8.3. Instructor Qualifications.

(1) The Training Documentation shall contain the Curriculum Vitae (CV) for each Instructor designated to participate in the course.

22. Contractor's Progress, Status and Man Month Report {PMBCPR0})

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title Contractor's Progress, Status and Man Month Report	2. Identification Number NCIA-DI-PMBCPR0	Based on US-DOD-DI-MGMT-81334
3. Description / Purpose 3.1. This documents the Contractor's monthly Progress Report, Project Status and Man-month effort applied during the last calendar month. The report will provide a synopsis of carried out tasks, and provide a summary of forecast tasks to be completed the next calendar month...		
4. Not Used	5. Office of Primary Responsibility	
6. Application / Interrelationship 6.1. This Data Item Description (DID) contains the format and content preparation instructions for the CPSMR to be submitted by the contractor. 6.2. This DID shall be applied to the NCIA VOICE LOOP System contract and all related exercised options. 6.3. The CPSMR is a basic Programme management aid to monitor the progress of all elements of the Voice Loop Project. It provides the a summary of progress, achieved milestones and tasks completed within the last calendar month and forecasts expected tasks to be completed in the next calendar month. 6.4. The contractor shall describe carefully the efforts in material and manpower as well as the tasks associated, with cross reference to the project MIPS and individual Site Installation Engineering Plans. 6.5 The CPSMR provides the primary coordination between the Contractor and Purchaser, outlining project progress, highlighting problem areas, issues and risks.		
7. Applicable Forms		

8. Preparation Instructions

8.1. Reference document. The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be as specified in the contract.

8.2. Specific instructions.

(1) The CPSMR will evolve throughout project implementation, identifying outstanding Action Items (AIs), agreed project timeline implementation deviations and ancillary risks and problem areas which emerge throughout implementation.

(2) The CPSMP will provide the historical Project Implementation record of project activities and as such must be maintained concurrent with project activity as a record of completed or on-going project activities.

23. CONFERENCE AGENDA (NCIA-DI-PMCONFA)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title CONFERENCE AGENDA	2. Identification Number NCIA-DI-PMCONFA	Based on US-DOD-DO-ADMIN-81249
3. Description / Purpose 3.1. A Conference Agenda provides agenda information concerning purpose, location, and schedule of the joint contractor/Purchaser conference required to manage the acquisition of system/equipment, related items, and services. The agenda sets forth the place, time, date, purpose, and objectives of each forthcoming conference.		
4. Not Used	5. Office of Primary Responsibility	
6. Application / Interrelationship 6.1. This Data Item Description (DID) contains the format, content and preparation instructions for the data product generated by the specific and discrete task requirement for the data included in the contract		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Format and content. A separate agenda in contractor format is required for each proposed conference. The agenda shall include the following, where applicable:

- The purpose and objective of the conference
- The recommended conference location, date and duration
- A daily chronological listing of each major topic or subtopic to be discussed and the time schedule to be devoted to each topic
- A recommended list of activities to be represented and identification of their responsibilities
- A recommended list of subcommittees to be established during the conference and the proposed activity representation for each subcommittee
- Reference to and brief description of the results of previous meetings on the same idea
- Location, schedule and purpose or subject area to be covered by each subcommittee
- Name of Purchaser chairman and contractor co-chairman of conference and designated activity representative to act as subcommittee chairman
- Administrative notes as required to indicate billeting, messing, transportation, and administrative services available to conference attendees
- Complete list of all documentation to be available for review
- Brief description of progress on actions or problems identified as previous meetings
- Other pertinent information such as forms to be used, identification of any deviations or waivers, security classification, clearance requirements etc.
- A record of Conference/meeting attendees, including Name, Military Rank, email and telephone contact details.

24. CONFERENCE MINUTES (NCIA-DI-PMCONFM)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title CONFERENCE MINUTES	2. Identification Number NCIA-DI-PMCONFM	Based on US-DOD-DI-ADMIN-81250
3. Description / Purpose 3.1. Conference Minutes provide documentation of technical information and data required to record joint contractor/Purchaser decisions and agreements reached during conferences, formal reviews, inspections, or audits.		
4. Not Used	5. Office of Primary Responsibility	
6. Application / Interrelationship 6.1. This Data Item Description (DID) contains the format, content and preparation instructions for the data product generated by the specific and discrete task requirement for the data included in the contract		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Format and content. Minutes of each conference shall be prepared in contractor format and shall specify the following:

- The purpose and objective of the conference
- The conference location
- A summary of the discussions, decisions, agreements reached, and directions of the conference or individual subcommittees thereof
- A list of attendees by name, rank, rate, grade or position, activity represented, activity code, e-mail address and phone numbers, as appropriate
- Copies of action item sheets for each action to be implemented as a result of the conference. Format of the action item sheets shall be as specified by the conference chairman
- An updated copy of the conference agenda reflecting the actual agenda for the conference as conducted
- The required elements of information specified by the conference chairman which are applicable to the type of conference conducted and other data and information as mutually agreed between the contractor and the procuring activity
- A copy of all presentation materials as amended at the conference.

25. PROJECT MANAGEMENT PLAN (NCIA-DI-PMMANP)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title PROJECT MANAGEMENT PLAN	2. Identification Number NCIA-DI-PMMANP	Based on US-DOD-DI-MGMT-80004
3. Description / Purpose 3.1. The management plan describes the contractor's organisation, assignment of functions, duties, and responsibilities, management procedures and policies, and reporting requirements for the conduct of contractually-imposed tasks, projects, or programmes.		
4. Not Used	5. Office of Primary Responsibility NCIA/Air C2 PO	
6. Application / Interrelationship 6.1. This data item description contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement for this data included in the contract. 6.2. This data item may be applied in any contract or program phase where the contract management is under the direction and control of the contractor.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Contract. This data item is generated by the contract which contains a specific and discrete work task to develop this data product.

8.2. Not Used

8.3. Contents.

8.3.1. General. The Project Management Plan shall detail the organisational structure, the assignment of functions, duties, and responsibilities, the procedures and policies and the reporting requirements that are established for the initiation, monitoring, control, completion, test and verification, and reporting of contractual tasks, projects, and programs.

8.3.2. Specific contents. The management plan shall cover the organisational structure, project management methodology, personnel, security and reports as described herein. Other subjects shall be included as follows:

- Risk management
- Subcontract management
- Manufacturing management for developed hardware end items
- Configuration control
- Quality assurance
- Provisioning
- Reliability
- Design control
- Tests
- Certifications
- Packaging
- Shipping
- Standardisation
- Control of Purchaser property
- Delivery procedures

- Approach to new technology insertion

8.3.3. Organisational structure. The plan shall present an organisational chart and supporting narrative portraying the contractor's business (corporate) structure. It shall describe the functional relationships and responsibilities among the organisational elements that will participate in the accomplishment of the contractual commitments.

8.3.4. Project management. The plan shall present an organisational chart and supporting narrative describing the management office the contractor establishes to manage the contractual commitments. The plan shall define the direct lines of control, responsibilities, functional relationships, and authority between the management office and the contractor's other organisational elements. The plan shall also describe all interfaces between the contractor and the Purchaser and between the contractor and other contractors and other organisations which are necessary and pertinent to the accomplishment of contractual tasks, projects, and programs.

8.3.5. Methodology.

(1) The plan shall include a narrative description of the technical approach or methods (including tools, techniques, and procedures) the contractor will employ to accomplish contractual tasks, projects, and programs, including, as applicable, development, tests, manufacture, construction, formulation, installation, logistics support, training, maintenance documentation, and configuration controls.

(2) The plan shall include a milestone chart(s), linked to the Implementation Programme Schedule, graphically depicting the schedule of events associated with accomplishing each contractual commitment.

8.3.6. Personnel.

(1) The plan shall list the personnel staffing of the contractor's management office and all key personnel that direct the contractual tasks, projects, and programs and assist in completing the contract. The listing shall include the education, training, skills, experience and security clearance that personnel require to fill each such position and shall state the identity, background, and work experience of the personnel assigned to fill these positions. The plan shall identify the authority, responsibilities, and assigned duties of these personnel.

(2) The plan shall also describe the staffing required for proper accomplishment of each contractual task by skill type, skill level, number of personnel, and security clearance. When submitted as part of a bid, the plan shall state how many such personnel are currently available and how many new hires are required to staff fully to accomplish each task as scheduled.

8.3.7. Security.

(1) The plan shall describe the security programme, safeguards, emergency procedures to be established to the protection of Purchaser-furnished and contractor-developed classified materials prepared in conjunction with the project. The plan shall be in accordance with guidelines contained in national and NATO industrial security regulations, and such additional requirements as may be stipulated by the cognisant security compliance organisation.

8.3.8. Reports. The plan shall describe the management methods the contractor will employ to ensure meeting all preparations, format, and submittal requirements established by the CDRL (DD Form 1423) for data to be delivered to the Purchaser.

26. MASTER INTEGRATED PROJECT SCHEDULE (NCIA-DI-PMMIPS)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title MASTER INTEGRATED PROJECT SCHEDULE	2. Identification Number NCIA-DI-PMMIPS	Based on US-DOD-DI-MISC-81183
3. Description / Purpose 3.1. The Master Integrated Project Schedule is an integrated schedule development by a logical networking of project activity detail. The Project Work Breakdown Structure is the foundation of the Project Schedule and provides a hierarchy for schedule traceability and summarisation. Project Milestones are included in the Project Schedule to monitor events in the project which define progress and final completion. 3.2. This information will be used to verify attainability of project objectives, evaluate the progress of the Purchaser/contractor team toward meeting the project objective, and to integrate program schedule among all related components.		
4. Not Used	5. Office of Primary Responsibility NCIA/Air C2 PO	
6. Application / Interrelationship 6.1. This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirements as delineated in the contract. 6.2. This DID may be applied during the demonstration/validation, full-scale development (FSD), and production phases. 6.3. The DID shall be computer based media or manually generated as specified on the CDRL (DD form 1423).		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Format. This precedence diagram shall be in the contractor's format in the form of a network, milestone, and gant chart

8.2. Content. The Master Integrated Project Schedule shall contain an integrated network-based schedule developed from the Project and Contract Work Breakdown Structures to include project milestones and definitions, logical network based schedules, summary, intermediate, and detailed schedules, and periodic analysis of progress to date. The schedule shall be vertically and horizontally traceable. Descriptions of the key elements are as follows:

8.2.1. Project milestones and definitions: Key programmatic events defined by the contracting agency or weapon system contractor which defines progress and completion in each work breakdown structure element along with the Definition for successful completion of the milestone.

8.2.2. Summary Master Schedules. A graphical display of top level project activities and key milestones which depict major work activities in an integrated fashion at the summary level of the WBS, e.g. level 1-3 of the WBS.

8.2.3. Intermediate schedules: A graphical display of top level project activities and key milestones which depict major work activities in a major work breakdown structure element, e.g., level 3-5 of the WBS.

8.2.4. Detailed schedules: A graphical display of detailed activities and milestones which depict work activities in a particular work breakdown structure element, e.g. level 4-8 of the WBS.

8.2.5. Periodic analysis: A brief summary which identifies progress to date, variances to the planned schedule, causes for the variance, potential impacts and recommended corrective action to avoid schedule

delays. For each project milestone planned, forecasted and actual completion dates shall be reported. The analysis shall also identify potential problems and a continuing assessment of the network critical path.

8.2.6. Integrated project network: A logical diagram of all activities in the project. The key elements of the integrated network to be constructed in the diagram are as follows:

(1) Event - A specific definable accomplishment in the project/project network, recognisable at a particular point in time. Events are numbered and are contained within an activity box.

(2) Activity - a time consuming element, e.g., work in progress between interdependent events, represented by an activity box. The left side represents the beginning of the activity, and the right side is the completion of the activity.

(3) Duration - average length of time needed to accomplish an event/activity.

(4) Constraint - A line that defines how two activities or events are logically linked. It can take up to four (4) forms:

- FS (finish to start) - An activity must finish before another can start.
- SS (start to start) - An activity depends on the start of another activity.
- FF (finish to finish) - One activity cannot finish until another activity is finished.
- SF (start to finish) - An activity cannot finish until another activity starts.

(5) Slack or Float - Extra time available on an activity before it will impact an activity on the critical path.

(6) Critical Path - A sequence of activities in the network that has the longest total duration through the project. Activities along the critical path have zero or negative slack/float. It should be easily distinguished on the report formats, e.g. a thick line or in red ink. This should be calculated by computer-based software.

(7) Target Start (TS) - Data input operator defined date of when an activity should start. This is an operator defined date rather than a computer calculated date.

(8) Target Complete (TC) - Data input operator defined date of when an activity should finish. This is an operator defined date rather than a computer calculated date.

(9) Actual Start (AS) - Operator defined actual start date of an activity.

(10) Actual Finish (AF) - Operator defined actual finish date of an activity.

(11) Early Start (ES) - The earliest start date an activity can begin the precedence relationships. Computer calculated date.

(12) Early Finish (EF) - The earliest finish date an activity can end. Computer calculated date.

(13) Late Start (LS) - The latest start date an activity can start without delaying the project target completion date. Computer calculated date.

(14) Late Finish (LF) - The latest finish date an activity can have without affecting the project target completion date. Computer calculated date.

(15) Per cent Complete (PC) - Actual progress of an activity from its start to its finish.

8.3. Master Integrated Project Schedule. The MIPS shall display all of the proposed project activities, events, and milestones from contract award to the completion of the contract.

8.4. Descriptive titles. Activities, events, and milestones shall be labelled with a brief descriptive title, numbered or coded and contain time constraints (e.g., duration, TS, ES, EF, LS, LF, etc...). Standard abbreviations may be used to conserve space. Descriptive titles used on activities, events, and milestones shall be identical on all project schedules. A legend shall be provided to aid in ease of reading the schedules.

8.5. Schedule risk. The schedule shall include a description of the approach that will be taken to limit the schedule risks identified as a result of the contractor's risk assessment. Risk shall be defined considering impact on cost and technical performance and assessing the probability of schedule change.

27. CONTRACT WORK BREAKDOWN STRUCTURE (NCIA-DI-PPBCWBS)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title	2. Identification Number	Based on
CONTRACT WORK BREAKDOWN STRUCTURE	NCIA-DI-PPBCWBS	US-DOD-DI-MGMT-81334

3. Description / Purpose

3.1. This documents the Contract Work Breakdown Structure (CWBS) and its extension by the contractor using terminology and definitions, as applicable, in MIL-HDBK-881A. The complete Contract Work Breakdown Structure (CWBS) will serve as the basis for program and technical planning, scheduling, cost estimating, resource allocations, performance management, configuration management, and status and cost reporting.

4. Not Used	5. Office of Primary Responsibility

6. Application / Interrelationship

6.1. This Data Item Description (DID) contains the format and content preparation instructions for the CWBS to be submitted by the contractor, according to the guidelines provided by MIL-HDBK-881A...

6.2. This DID shall be applied to the NCIA VOICE LOOP System contract and all related exercised options.

6.3. The Basic CWBS given in Annex C of the VOICE LOOP System SOW shall be respected by the contractor. A more detailed breakdown of the basic structure elements is allowed without meeting with the approval of the purchaser. In case of changes of the Basic CWBS, the contractor shall prove that the output target will be just as it was. Changes of the basic CWBS shall be agreed by the purchaser.

6.4. The contractor shall describe carefully the efforts in material and manpower as well as the tasks associated with every CWBS element.

7. Applicable Forms

8. Preparation Instructions

8.1. Reference document. The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be as specified in the contract.

8.2. Specific instructions. The CWBS shall be reflected in a report which consists of two parts. Part I is an index, and Part II is a dictionary.

8.2.1. Part I - Contract Work Breakdown Structure Index.

(1) The CWBS shall contain the data elements as shown in the attached Part I sample format.

a. Line number. Enter line number for each CWBS. Line numbers should be sequential starting with 1.

b. CWBS element. Enter the title of the CWBS element (using the specific name or nomenclature, when applicable), intended to reflect the level.

c. CWBS code. Enter the CWBS code, if applicable.

d. Contract line items. Enter the number of the contract line item(s) which is (are) associated with the CWBS element, if applicable.

e. Statement of Work (SOW) paragraph number(s). Enter the applicable paragraph number(s) from the Statement of Work (SOW), if applicable.

8.2.2. Part II - Contract Work Breakdown Structure Dictionary.

(1) The CWBS dictionary shall describe the effort and tasks associated with every CWBS element. The Part II sample attached provides the format for the CWBS dictionary.

a. Level of CWBS. Enter the level of each CWBS element.

b. CWBS element. Enter the title of each CWBS element in the same order as given in Part 1, Contract Work Breakdown Structure Index.

c. CWBS Definition. Enter a complete description of the technical and cost content of each CWBS element. The statement should be as descriptive as possible about the efforts, tasks, tests, components, etc. that shall be included in the CWBS element by the contractor.

28. INTERFACE REQUIREMENTS SPECIFICATION - (NCIA-DI-SWIR)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title INTERFACE REQUIREMENTS SPECIFICATION	2. Identification Number NCIA-DI-SWIRS	Based on US-DOD-DI-IPSC-81434
3. Description / Purpose 3.1. The Interface Requirements Specification (IRS) specifies the requirements imposed on one or more systems, subsystems, Hardware Configuration Items (HWCIs), Computer Software Configuration Items (CSCIs), manual operations, or other system components to achieve one or more interfaces among these entities. An IRS can cover any number of interfaces. 3.2. The IRS can be used to supplement the System/Subsystem Specification (SSS) and Software Requirements Specification (SRS) as the basis for design and qualification testing of systems and CSCIs.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO	
6. Application / Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Content requirements:

8.1.1. Scope. This section shall be divided into the following paragraphs.

8.1.1.1. Identification. This paragraph shall contain a full identification of the system(s), the interfacing entities, and interfaces to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

8.1.1.2. System overview. This paragraph shall briefly state the purpose of the system(s) and software to which this document applies. It shall describe the general nature of the system and software; summarise the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

8.1.1.3. Document overview. This paragraph shall summarise the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

8.1.2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Purchaser stocking activities.

8.1.3. Requirements. This section shall be divided into the following paragraphs to specify the requirements imposed on one or more systems, subsystems, configuration items, manual operations, or other system components to achieve one or more interfaces among these entities. Each requirement shall be assigned a project-unique identifier to support testing and traceability and shall be stated in such a way that an objective test can be defined for it. Each requirement shall be annotated with associated qualification method(s) (see section 4) and traceability to system (or subsystem, if applicable) requirements (see section 5.a) if not provided in those sections. The degree of detail to be provided shall be guided by the following rule: Include those characteristics of the interfacing entities that are conditions for their acceptance; defer to design documents those characteristics that the acquirer is willing to leave up to the developer. If a given requirement fits into more than one paragraph, it may be stated once and referenced from the other

paragraphs. If an interfacing entity included in this specification will operate in states and/or modes having interface requirements different from other states and modes, each requirement or group of requirements for that entity shall be correlated to the states and modes. The correlation may be indicated by a table or other method in this paragraph, in an appendix referenced from this paragraph or by annotation of the requirements in the paragraphs where they appear.

8.1.3.1. Interface identification and diagrams. For each interface identified in 1.1, this paragraph shall include a project-unique identifier and shall designate the interfacing entities (systems, configuration items, users, etc.) by name, number, version, and documentation references, as applicable. The identification shall state which entities have fixed interface characteristics (and therefore impose interface requirements on interfacing entities) which are being developed or modified (thus having interface requirements imposed on them). One or more interface diagrams shall be provided to depict the interfaces.

8.1.3.2. (Project-unique identifier of interface).

(1) This paragraph (beginning with 3.2) shall identify an interface by project-unique identifier, shall briefly identify the interfacing entities, and shall be divided into subparagraphs as needed to state the requirements imposed on one or more of the interfacing entities to achieve the interface. If the interface characteristics of an entity are not covered by this IRS but need to be mentioned to specify the requirements for entities that are, those characteristics shall be stated as assumptions or as "When [the entity not covered] does this, the [entity being specified] shall...", rather than as requirements on the entities not covered by this IRS. This paragraph may reference other documents (such as data dictionaries, standards for communication protocols, and standards for user interfaces) in place of stating the information here. The requirements shall include the following, as applicable, presented in any order suited to the requirements, and shall note any differences in these characteristics from the point of view of the interfacing entities (such as different expectations about the size, frequency, or other characteristics of data elements):

a. Priority that the interfacing entity(ies) must assign the interface

b. Requirements on the type of interface (such as real-time data transfer, storage-and-retrieval of data, etc.) to be implemented

c. Required characteristics of individual data element that the interfacing entity(ies) must provide, store, send, access, receive, etc., such as:

- Names/identifiers
  - Project-unique identifier
  - Non-technical (natural-language) name
  - VOICE LOOP standard data element name
  - Technical name (e.g. variable or field name in code or database)
  - Abbreviation or synonymous names
- Data type (alphanumeric, integer, etc.)
- Size and format (such as length and punctuation of a character string)
- Units of measurement (such as meters, dollars, nanoseconds)
- Range or enumeration of possible values (such as 0-99)
- Accuracy (how correct) and precision (number of significant digits)
- Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply
- Security and privacy constraints
- Sources (setting/sending entities) and recipients (using/receiving entities)

d. Required characteristics of data element assemblies (records, messages, files, arrays, displays, reports, etc.) that the interfacing entity(ies) must provide, store, send, access, receive, etc., such as:

- Names/identifiers
  - Project-unique identifier

- Non-technical (natural language) name
- Technical name (e.g., record or data structure name in code or database)
- Abbreviations or synonymous names

- Data elements in the assembly and their structure (number, order, grouping)
- Medium (such as disk) and structure of data elements/assemblies on the medium
- Visual and auditory characteristics of displays and other outputs (such as colours, layouts, fonts, icons and other display elements, beeps, lights)
- Relationships among assemblies, such as sorting/access characteristics
- Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the assembly may be updated and whether business rules apply
- Security and privacy constraints
- Sources (setting/sending entities) and recipients (using/receiving entities)

e. Required characteristics of communication methods that the interfacing entity(ies) must use for the interface, such as:

- Project-unique identifier(s)
- Communication links/bands/frequencies/media and their characteristics
- Message formatting
- Flow control (such as sequence numbering and buffer allocation)
- Data transfer rate, whether periodic/aperiodic, and interval between transfers
- Routing, addressing, and naming conventions
- Transmission services, including priority and grade
- Safety/security/privacy considerations, such as encryption, user authentication, compartmentalisation, and auditing

f. Required characteristics of protocols the interfacing entity(ies) must use for the interface, such as:

- Project-unique identifier(s)
- Priority/layer of the protocol
- Packeting, including fragmentation and reassembly, routing, and addressing
- Legality checks, error control, and recovery procedures
- Synchronisation, including connection establishment, maintenance, termination
- Status, identification, and any other reporting features

g. Other required characteristics, such as physical compatibility of the interfacing entities (dimensions, tolerances, loads, plug compatibility, etc.), voltages, etc.

8.1.3.3. Precedence and criticality of requirements. This paragraph shall be numbered as the last paragraph in Section 3 and shall specify, if applicable, the order of precedence, criticality, or assigned weights indicating the relative importance of the requirements in this specification. Examples include identifying those requirements deemed critical to safety, to security, or to privacy for purposes of singling them out for special treatment. If all requirements have equal weight, this paragraph shall so state.

8.1.4. Qualification provisions.

(1) This section shall define a set of qualification methods and shall specify, for each requirement in Section 3, the qualification method(s) to be used to ensure that the requirement has been met. A table may be used to present this information, or each requirement in Section 3 may be annotated with the method(s) to be used. Qualification methods may include:

- Demonstration: The operation of interfacing entities that relies on observable functional operation not requiring the use of instrumentation, special test equipment, or subsequent analysis
- Test: The operation of interfacing entities using instrumentation or special test equipment to collect data for later analysis
- Analysis: The processing of accumulated data obtained from other qualification methods. Examples are reduction, interpretation, or extrapolation of test results
- Inspection: The visual examination of interfacing entities, documentation, etc.
- Special qualification methods: Any special qualification methods for the interfacing entities, such as special tools, techniques, procedures, facilities, and acceptance limits

8.1.5. Requirements traceability.

(1) For system-level specifications, (upward and downward) traceability shall be provided to the requirements in the Procurement Specifications and IRD. For each subsystem-or lower-level interfacing entity covered by this IRS, this paragraph shall contain:

a. Traceability from each requirement imposed on the entity in this specification to the system (or subsystem, if applicable) requirements it addresses. (Alternatively, this traceability may be provided by annotating each requirement in Section 3).

Note: Each level of system refinement may result in requirements not directly traceable to higher-level requirements. For example, a system architectural design that creates multiple CSCIs may result in requirements about how the CSCIs will interface, even though these interfaces are not covered in system requirements. Such requirements may be traced to a general requirement such as "system implementation" or to the system design decisions that resulted in their generation.

b. Traceability from each system (or subsystem, if applicable) requirement that has been allocated to the interfacing entity and that affects an interface covered in this specification to the requirements in this specification that address it.

8.1.6. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

8.1.7. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendices may be bound as separate documents for ease in handling. Appendices shall be lettered alphabetically (A, B, etc.).

29. SOFTWARE REQUIREMENTS SPECIFICATION (NCIA-DI-SWSRS)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title SOFTWARE REQUIREMENTS SPECIFICATION	2. Identification Number NCIA-DI-SWSRS	Based on US-DOD-DI-IPSC-81433
3. Description / Purpose 3.1. The Software Requirements Specification (SRS) specifies the requirements for a Computer Software Configuration Item (CSCI) and the methods to be used to ensure that each requirement has been met. Requirements pertaining to the CSCI's external interfaces may be presented in the SRS or in one or more Interface Requirements Specifications (IRSs) referenced from the SRS. 3.2. The SRS, supplemented by IRSs, is used as the basis for the design and qualification testing of a CSCI.		
4. Not Used	5. Office of Primary Responsibility NCIA/Air C2 PO	
6. Application / Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Content requirements:

8.1.1. Scope. This section shall be divided into the following paragraphs.

8.1.1.1. Identification. This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

8.1.1.2. System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarise the history of system development, operation and maintenance; identify the project sponsor, acquirer, user, developer and support agencies; identify current and planned operating sites; and list other relevant documents.

8.1.1.3. Document overview. This paragraph shall summarise the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

8.1.2. Referenced documents. This section shall list the number, title, revision and data of all documents referenced in this specification. This section shall also identify the source for all documents not available through normal Purchaser stocking activities.

8.1.3. Requirements. This section shall be divided into the following paragraphs to specify the CSCI requirements, that is, those characteristics of the CSCI that are conditions for its acceptance. CSCI requirements are software requirements generated to satisfy the system requirements allocated to this CSCI. Each requirement shall be assigned a project-unique identifier to support testing and traceability and shall be stated in such a way that an objective test can be defined for it. Each requirement shall be annotated with associated qualification method(s) (see section 4) and traceability to system (or subsystem, if applicable) requirements (see section 5.a) if not provided in those sections. The degree of detail to be provided shall be guided by the following rule: Include those characteristics of the CSCI that are conditions for CSCI acceptance; defer to design descriptions those characteristics that the acquirer is willing to leave up to the developer. If there are no requirements in a given paragraph, the paragraph shall so state. If a given requirement fits into more than one paragraph, it may be stated once and referenced from the other paragraphs. The Contractor shall use CASE tools to develop the software requirements specification.

8.1.3.1. Required states and modes. If the CSCI is required to operate in more than one state or mode having requirements distinct from other states or modes, this paragraph shall identify and define each state and mode. Examples of states and modes include: idle, ready, active, post-use analysis, training, degraded, emergency, backup, wartime, peacetime. The distinction between states and modes is arbitrary. A CSCI may be described in terms of states only, modes only, states within modes, modes within states, or any other scheme that is useful. If no states or modes are required, this paragraph shall so state, without the need to create artificial distinctions. If states and/or modes are required, each requirement or group of requirements in this specification shall be correlated to the states and modes. The correlation may be indicated by a table or other method to this paragraph, in an appendix referenced from this paragraph, or by annotation of the requirements in the paragraphs where they appear.

8.1.3.2. CSCI capability requirements. This paragraph shall be divided into subparagraphs to itemise the requirements associated with each capability of the CSCI. A "capability" is defined as a group of related requirements. The word "capability" may be replaced with "function", "subject", "object", or other term useful for presenting the requirements.

8.1.3.2.1. (CSCI capability). This paragraph shall identify a required CSCI capability and shall itemise the requirements associated with the capability. If the capability can be more clearly specified by dividing it into constituent capabilities, the constituent capabilities shall be specified in subparagraphs. The requirements shall specify required behaviour of the CSCI and shall include applicable parameters, such as response times, throughput times, other timing constraints, sequencing, accuracy, capacities (how much/how many), priorities, continuous operation requirements, and allowable deviations based on operating conditions. The requirements shall include, as applicable, required behaviour under unexpected, unallowed, or "out of bounds" conditions, requirements for error handling, and any provisions to be incorporated into the CSCI to provide continuity of operations in the event of emergencies. Paragraph 3.3.x of this DID provides a list of topics to be considered when specifying requirements regarding inputs the CSCI must accept and outputs it must produce.

8.1.3.3. CSCI external interface requirements. This paragraph shall be divided into subparagraphs to specify the requirements, if any, for the CSCI's external interfaces. This paragraph may reference one or more Interface Requirements Specifications (IRSs) or other documents containing these requirements.

8.1.3.3.1. Interface identification and diagrams. This paragraph shall identify the required external interfaces of the CSCI (that is, relationships with other entities that involve sharing, providing or exchanging data). The identification of each interface shall include a project-unique identifier and shall designate the interfacing entities (systems, configuration items, users, etc.) by name, number, version and documentation references, as applicable. The identification shall state which entities have fixed interface characteristics (and therefore impose interface requirements on interfacing entities) which are being developed or modified (thus having interface requirements imposed on them). One or more interface diagrams shall be provided to depict the interfaces.

8.1.3.3.2. (Project-unique identifier of interface). This paragraph (beginning with 3.3.2) shall identify a CSCI external interface by project-unique identifier, shall briefly identify the interfacing entities, and shall be divided into subparagraphs as needed to state the requirements imposed on the CSCI to achieve the interface. Interface characteristics of the other entities involved in the interface shall be stated as assumptions or as "When [the entity not covered] does this, the CSCI shall ..., not as requirements on the other entities. This paragraph may reference other documents (such as data dictionaries, standards for communication protocols, and standards for user interfaces) in place of stating the information here. The requirement s shall include the following, as applicable, presented in any order suited to the requirements, and shall note any differences in these characteristics from the point of view of the interfacing entities (such as different expectations about the size, frequency, or other characteristics of data elements):

- priority that the CSCI must assign the interface,
- requirements on the type of interface (such as real-time data transfer, storage-and-retrieval of data, etc.) to be implemented,
- required characteristics of individual data elements that the CSCI must provide, store, send, access, receive, etc., such as:

- names/identifiers (Project-unique identifier, Non-technical (natural-language) name, VOICE LOOP standard data element name, Technical name (e.g., variable or field name in code or database), Abbreviation or synonymous names),
- data type (alphanumeric, integer, etc.),
- size and format (such as length and punctuation of a character string),
- units of measurement (such as meters, dollars, nanoseconds),
- range or enumeration of possible values (such as 0-99),
- accuracy (how correct) and precision (number of significant digits),
- priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply,
- security and privacy constraints,
- sources (setting/sending entries) and recipients (using/receiving entities).

- required characteristics of data element assemblies (records, messages, files, arrays, displays, reports, etc.) that the CSCI must provide, store, send, access, receive, etc., such as:
  - names/identifiers (Project-unique identifier, Non-technical (natural-language) name, VOICE LOOP standard data element name, Technical name (e.g., variable or field name in code or database), Abbreviation or synonymous names),
  - data elements in the assembly and their structure (number, order, grouping),
  - medium (such as disk) and structure of data elements/assemblies on the medium,
  - visual and auditory characteristics of displays and other outputs (such as colours, layouts, fonts, icons and other display elements, beeps, lights),
  - relationships among assemblies, such as sorting/access characteristics,
  - priority, timing, frequency, volume, sequencing, and other constraints, such as whether the assembly may be updated and whether business rules apply,
  - security and privacy constraints,
  - sources (setting/sending entities) and recipients (using/receiving entities).
- required characteristics of communication methods that the CSCI must use for the interface, such as:
  - project-unique identifier(s),
  - communication links/bands/frequencies/media and their characteristics,
  - message formatting,
  - flow control (such as sequence numbering and buffer allocation),
  - data transfer rate, whether periodic/aperiodic, and interval between transfers,
  - routing, addressing, and naming conventions,
  - transmission services, including priority and grade,
  - safety/security/privacy considerations, such as encryption, user authentication, compartmentalisation, and auditing.
- required characteristics of protocols the CSCI must use for the interface, such as:
  - project-unique identifier(s),
  - priority/layer of the protocol,
  - packeting, including fragmentation and reassembly, routing, and addressing,
  - legality checks, error control, and recovery procedures,

- synchronisation, including connection establishment, maintenance, termination,
- status, identification, and any other reporting features.

- other required characteristics, such as physical compatibility of the interfacing entities (dimensions, tolerances, loads, plug compatibility, etc.), voltages, etc.

8.1.3.4. CSCI internal interface requirements. This paragraph shall specify the requirements, if any, imposed on interfaces internal to the CSCI. If all internal interfaces are left to the design, this fact shall be so stated. If such requirements are to be imposed, paragraph 3.3. of this DID provides a list of topics to be considered.

8.1.3.5. CSCI internal data requirements. This paragraph shall specify the requirements, if any, imposed on data internal to the CSCI. Included shall be requirements, if any, on databases and data files to be included in the CSCI. If all decisions about internal data are left to the design, this fact shall be so stated. If such requirements are to be imposed, paragraphs 3.3.x.c and 3.3.x.d of this DID provide a list of topics to be considered.

8.1.3.6. Adaptation requirements. This paragraph shall specify the requirements, if any, concerning installation-dependent data to be provided by the CSCI (such as site-dependent latitude and longitude or site-dependent state tax codes) and operational parameters that the CSCI is required to use that may vary according to operational needs (such as parameters indicating operation-dependent targeting constants or data recording).

8.1.3.7. Safety requirements. This paragraph shall specify the CSCI requirements, if any, concerned with preventing or minimising unintended hazards to personnel, property and the physical environment. Examples include safeguards the CSCI must provide to prevent inadvertent actions (such as accidentally issuing an "auto pilot off" command) and non-actions (such as failure to issue an intended "auto pilot off" command).

8.1.3.8. Security and privacy requirements. This paragraph shall specify the CSCI requirements, if any, concerned with maintaining security and privacy. These requirements shall include, as applicable, the security/privacy environment in which the CSCI must operate, the type and degree of security or privacy to be provided, the security/privacy risks the CSCI must withstand, required safeguards to reduce those risks, the security/privacy policy that must be met, the security/privacy accountability the CSCI must provide, and the criteria that must be met for security/privacy certification/accreditation

8.1.3.9. CSCI environment requirements. This paragraph shall specify the requirements, if any, regarding the environment in which the CSCI must operate. Examples include the computer hardware and operating system on which the CSCI must run. (Additional requirements concerning computer resources are given in the next paragraph).

8.1.3.10. CSCI performance requirements. This paragraph shall be divided into subparagraphs to describe the specified requirements, if any, for the performance of this CSCI with regards to event rates, response times, throughput, and communications. This paragraph may reference requirements contained in other documents containing these requirements.

8.1.3.10.1. Event rates requirements. This paragraph shall specify the additional requirements, if any, concerning event rates that are specified for the CSCI.

8.1.3.10.2. Response times requirements. This paragraph shall specify the additional requirements, if any, concerning response times that are specified for the CSCI.

8.1.3.10.3. Throughput requirements. This paragraph shall specify the additional requirements, if any, concerning the throughput that are specified for the CSCI.

8.1.3.11. Software quality factors. This paragraph shall specify the CSCI requirements, if any, concerned with software quality factors identified in the contract or derived from a higher level specification. Examples include quantitative requirements regarding CSCI functionality (the ability to perform all required functions), reliability (the ability to perform with correct, consistent results), maintainability (the ability to be easily corrected), availability (the ability to be accessed and operated when needed), flexibility (the ability to be easily adapted to changing requirements), portability (the ability to be easily modified for a new environment), reusability (the ability to be used in multiple applications), testability (the ability to be easily and thoroughly tested), usability (the ability to be easily learned and used), and other attributes.

8.1.3.12. Design and implementation constraints. This paragraph shall specify the requirements, if any, that constrain the design and implementation of the CSCI. These requirements may be specified by reference to appropriate commercial or military standards and specifications. Examples include requirements concerning:

- use of a particular CSCI architecture or requirements on the architecture, such as required databases or other software units; use of standard, military, or existing components; or use of Purchaser/acquirer-furnished property (equipment, information or software),
- use of particular modularity requirements, such as for reuse and portability,
- use of particular design or implementation standards; use of particular data standards; use of a particular programming language,
- communications. This paragraph shall specify the additional requirements, if any, concerning the communications that must be used by the CSCI. Examples include geographic locations to be linked; configuration and network topology; transmission techniques; data transfer rates; gateways; required system use times; type and volume of data to be transmitted/received; time boundaries for transmission/reception/response; peak volumes of data; and diagnostic features. This paragraph can reference requirements in other documents (e.g. IRS) if this information is contained there,
- flexibility or expandability that must be provided to support anticipated areas of growth or changes in technology, threat, or mission.

8.1.3.13. Personnel-related requirements. This paragraph shall specify the CSCI requirements, if any, included to accommodate the number, skill levels, duty cycles, training needs, or other information about the personnel who will use or support the CSCI. Examples include requirements for number of simultaneous users and for built-in help or training features. Also included shall be the human factors engineering requirements, if any, imposed on the CSCI. These requirements shall include, as applicable, considerations for the capabilities and limitation of humans; foreseeable human errors under both normal and extreme conditions; and specific areas where the effects of human error would be particularly serious. Examples include requirements for colour and duration of error messages, physical placement of critical indicators or keys, and use of auditory signals.

8.1.3.14. Training-related requirements. This paragraph shall specify the CSCI requirements, if any, pertaining to training. Examples include training software to be included in the CSCI.

8.1.3.15. Logistics-related requirements. This paragraph shall specify the CSCI requirements, if any, concerned with logistics considerations. These considerations may include: system maintenance, software support, system transportation modes, supply-system requirements, impact on existing facilities, and impact on existing equipment.

8.1.3.16. Other requirements. This paragraph shall specify additional CSCI requirements, if any, not covered in the previous paragraphs.

8.1.3.17. Packaging requirements. This section shall specify the requirements, if any, for packaging, labelling and handling the CSCI for delivery (for example, delivery on 8 track magnetic tape labelled and packaged in a certain way). Applicable military specifications and standards may be referenced if appropriate.

8.1.3.18. Precedence and criticality of requirements. This paragraph shall specify, if applicable, the order of precedence, criticality, or assigned weights indicating the relative importance of the requirements in this specification. Examples include identifying those requirements deemed critical to safety, to security, or to privacy for purposes of singling them out for special treatment. If all requirements have equal weight, this paragraph shall so state.

8.1.4. Qualification provisions. This section shall define a set of qualification methods and shall specify for each requirement in Section 3 the method(s) to be used to ensure that the requirement has been met. Reference to the related VCRI shall provide this information.

8.1.5. Requirements traceability. This paragraph shall contain:

- traceability from each CSCI requirement in this specification to the system (or subsystem, if applicable) requirements it addresses. (Alternatively, this traceability may be provided by annotating each requirement in Section 3),

  Note: Each level of system refinement may result in requirements not directly traceable to higher-level requirements. For example, a system architectural design that creates multiple CSCIs may result in requirements about how the CSCIs will interface, even though these interfaces are not covered in system requirements. Such requirements may be traced to a general requirement such as "system implementation" or to the system design decisions that resulted in their generation.

- traceability from each system (or subsystem, if applicable) requirement allocated to this CSCI to the CSCI requirements that address it. All system (subsystem) requirements allocated to this CSCI shall be accounted for. Those that trace to CSCI requirements contained in IRSs shall reference those IRSs.

8.1.6. Notes. This section shall contain any general information that aids in understanding this specification (e.g. background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

8.1.7. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendices may be bound as separate documents for ease in handling. Appendices shall be lettered alphabetically (A, B, etc.).

30. QUALITY ASSURANCE PLAN (NCIA-DI-QMBQAP)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title QUALITY ASSURANCE PLAN	2. Identification Number NCIA-DI-QMBQAP	Based on N/A
3. Description/Purpose 3.1. The Quality Assurance Plan (QAP) identifies the organisational structure, processes, and procedures to be used by the Contractor to perform activities related to the Quality Program specified by the Contract. 3.2. The QAP is used to evaluate the Contractor's plans for implementing the Quality Program.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/OGM/QMB	
6. Application/Interrelationship 6.1. This Data Item Description (DID) contains the content and format preparation instructions for a Quality Assurance Plan (QAP) resulting from the work as described in the Statement of Work of the Contract and the NATO specific requirements for deliverable Quality Plans contained in AQAP 2105. 6.2. A prerequisite for the use of this DID is a contractual tasking to develop, provide, and/or support software, hardware, firmware or other services.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. General

(1) The Quality Assurance Plan (QAP) shall completely describe all aspects of the Contractor's plans to conduct a Quality Program in accordance with the Contract. This Quality Program shall encompass any software, hardware, and documentation being developed consistent with AQAP 2110, Edition 3, Section 7.0, Product realisation, and as stated in AQAP 2105, Edition 2, section 1.2., Purpose

8.2. Referenced Data

(1) The QAP may reference other contractually deliverable plans and documents which contain information required by this DID. Such data shall be completely identified by nomenclature and applicable contractual delivery requirements.

8.3. Contractor Generated Procedures

(1) This DID requires the Contractor to identify all procedures to be used in implementing his Quality Program. A copy of each Project specific procedure shall be provided in the appendices of the QAP. A copy of generic (non-specific) procedures need not be included in the QAP.

8.4. Format and Content

(1) The QAP format and content shall be as follows, however, some modification to the format outline scheme may be acceptable provided that all of the content requirements and elements prescribed below have been found by the Purchaser to be satisfactorily addressed.

8.4.1. Scope

This section shall be numbered 1 and shall be divided into the following paragraphs.

(1) Identification. This paragraph shall be numbered 1.1 and shall contain the approved identification number, title, and abbreviation, if applicable, of the system to which this QAP applies.

(2) System Overview. This paragraph shall be numbered 1.2 and shall state the purpose of the system and identify the functional and performance requirements to which this plan applies.

(3) Document Overview. This paragraph shall be numbered 1.3 and shall summarise the purpose and contents of this document.

(4) Relationship to Other Plans. This paragraph shall be numbered 1.4 and shall describe the relationship, if any, of the QAP to other Project plans.

8.4.2. Referenced Documents

(1) This paragraph shall be numbered 2 and shall list all documents referenced in this QAP.

8.4.3. Organisation and Resources

(1) This section shall be numbered 3 and shall be divided into the following paragraphs.

a. Organisation. This paragraph shall be numbered 3.1 and shall describe the Contractor's organisation(s) responsible for fulfilment of, and for ensuring compliance with, the Quality Program requirements. This paragraph shall include the authority and responsibilities of each organisation and its relationship to other organisational entities (e.g. the organisation(s) responsible for performing configuration management). A chart shall be used to illustrate the structure of the organisation(s) performing Quality Program activities and their position within the Project management system. If more than one organisation is involved, the precise structure and personnel of each organisation and their interrelationships shall be specified. Special attention shall be given to describing lines of communication both within the quality organisation and between quality and other functional organisations. Areas of organisational responsibility should be described in detail. Such areas should include those immediately outside of the formal quality organisation that complement the quality effort.

b. Resources. This paragraph shall be numbered 3.2 and shall describe, in the subparagraphs below, all resources that the Contractor will use for the Quality Program.

i. Contractor Facilities and Equipment. This subparagraph shall be numbered 3.2.1 and shall describe the Contractor's facilities and equipment to be used for the Quality Program;

ii. Purchaser Furnished Facilities, Equipment, Software, and Services. This subparagraph shall be numbered 3.2.2 and shall identify all Purchaser furnished facilities, equipment, software, and services required for use in the Quality Program;

iii. Personnel. This subparagraph shall be numbered 3.2.3 and shall describe the number and skill levels of personnel who will perform Quality Program activities. The personnel shall be described by title and minimum qualifications for the position;

iv. Other Resources. This subparagraph shall be numbered 3.2.4 and shall describe any other resources that will be used for performing Quality Program activities.

c. Schedule. This paragraph shall be numbered 3.3 and shall provide a schedule for the Quality Program activities required by the contract. For each activity, the schedule shall indicate activity initiation, dependencies on other events (such as availability of draft documents), and activity completion times. The schedule shall also show key development milestone, such as formal reviews, audits, and key meetings;

d. Subcontractor Assessments. This subparagraph shall be numbered 3.4 and shall describe the processes/procedures used to ensure that any work performed by Subcontractors meet all contractual requirements. This paragraph shall also address the NATO specific requirement in AQAP-2105, Edition 2, section 4.6.1 with respect to outsourced products, processes, and activities.

e. Interface. This paragraph shall be numbered 3.5 and shall describe the Contractor's intent to interface with Purchaser Quality Representatives/Inspectors as implemented by AQAP-2110 and STANAG 4107. Special attention shall be given to lines of communication and co-operation in audit, item acceptance, and acceptance of rework. This paragraph shall also address the NATO specific requirement to describe the relations to the GQAR and Acquirer (Purchaser) within the context of AQAP-2105, Edition 2, section 4.4.

8.4.4. Quality Program Processes, Procedures, Tools, and Records

(1) This section shall be numbered 4 and shall be divided into the following paragraphs.

a. Processes/Procedures. This paragraph shall be numbered 4.1 and shall identify the key processes and procedures to be used in the Quality Program and shall indicate each of the requirements to which they apply. Each process and procedure shall be identified by document number, title, revision number, and date. The procedures identified above shall be submitted to the Purchaser for review upon request. The procedures shall be referenced in this Quality Assurance Plan;

b. Tools. This paragraph shall be numbered 4.2 and shall identify the tools to be used in the Quality Program. Tool descriptions shall include the name, identification number, version, and development status of each tool and its role in the Quality Program;

c. Quality Records. This paragraph shall be numbered 4.3 and shall describe the Contractor's plans for preparing, maintaining, and making available for Purchaser review, records of each Quality Program activity performed. It shall identify the formats to be used and the information to be recorded for each type of record. Examples of records may be provided;

d. Project Measurements Program (This paragraph shall be numbered 4.4 and shall describe the provisions to be made for the implementation of monitoring, assessing, and reporting of Program metrics and indicators in line with the requirements of AQAP 2110, Edition 3, Section 8.0, Measurement, analysis, and improvement. This section shall explain how the use of specific warning and analysis indicators and techniques, to be agreed upon with the Purchaser, (e.g. "a Project Control Panel Dashboard") will be selected and used by the Quality Organisation for continuous insight into, detection, and identification of Project trends, problems, and prospective risks. This section shall also contain specific examples of the charts and graphs to be used and provisions for assuring their visibility to the NQAR, upon request, and during quality management reviews and audits by Purchaser QA;

e. Work Instructions (This paragraph shall be numbered 4.5 and shall contain all Contractor's inspection procedures and other quality assurance/control guidance and policy documentation which in any way influences the manufacturing process of the equipment produced and/or delivered under the provisions of this contract. The Quality Assurance Plan shall also include all processes, procedures, guidance, policies, directives, which in any way impact on performance of the Contractor during the execution of the contract. Work instructions should be included which are applicable to all line inspectors and quality auditors. Where such instructions are unique to certain processes or types of processes, the deviation from the standard format shall be noted;

f. Corrective Action System. This paragraph shall be numbered 4.6 and shall contain a description of the Contractor's Corrective Action System. This system, as it relates to quality assurance and quality control, shall include but not be limited to the following:

i. Top Management Policy;

ii. Procedures for disclosure of discrepancies in materials, manufacturing processes, engineering drawings, production control documentation, and all other factors affecting the quality of products and/or services;

iii. Determination of assignable causes;

iv. Timeliness of disclosure and/or corrective action;

v. Corrective action agency, describing:
- Frequency of activities exercising its control;
- Scope of its responsibilities;
- Scope of its authority;
- Corrective action follow-up;
- Corrective action audit;
- Corrective action reporting.

8.4.5. Hardware Quality Plan

(1) The paragraph shall be numbered 5 and shall contain a reference to the Hardware Quality Plan which is to be provided as annex A.

8.4.6. Software Project Quality Plan

(1) The paragraph shall be numbered 6 and shall contain a reference to the Software Project Quality Plan which is to be provided as annex B. If no software is to be developed, state so. However, quality assurance provisions for monitoring and control of support software, software support tools (CBT - Computer Based Tools), COTS, shall be identified and described, in accordance with AQAP 2110, Edition 3, and AQAP 2210, Edition 1.

8.4.7. Test, Installation and Check-out Quality Plan

(1) The paragraph shall be numbered 7 and shall contain a reference to the Test, Installation, and Check-out Quality Plan which is to be provided as annex C.

8.4.8. Notes

(1) This section shall be numbered 8 and shall contain any general information that aids in understanding this QAP (e.g. background information, glossary). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in the QAP.

8.5. Annex A - Specific requirements for the Hardware Quality Plan.

(1) Annex A shall identify the organisational structure and procedures to be used by the Contractor to perform activities related to the Hardware Quality Program in conformance with AQAP-2110, Edition 3. This plan is used to evaluate the Contractor's plans for implementing the Hardware Quality Program.

8.5.1. Records

(1) This paragraph shall be numbered A.1 and shall contain a description of all records maintained by all levels of the hardware quality organisation. These descriptions shall provide the content of records and the format. Furthermore, provisions for final disposition of records shall be described, addressing who within the Contractor's organisation has responsibility for reviews of records, the frequency of related process reviews, and what actions are taken as a result of such reviews. With respect to the records review process, the Contractor shall describe analysis performed to determine the level of effectiveness of process controls for the records review process in line with section 4.8.5, Analysis of Data; and section 4.8.6, Improvement, of AQAP-2105, Edition 2.

8.5.2. Reliability, Maintainability and Safety

(1) This paragraph shall be numbered A.4 and shall describe relationship to, monitoring and control of, and involvement in processes involving system logistic requirements (LSA) related to reliability, maintainability, safety, FMEA, FMECA. Specifically, the Contractor shall describe how he intends to use the Quality Program to support and assure the effectiveness of all efforts in the area of reliability, maintainability and safety.

8.5.3. Calibration and Control

(1) This paragraph shall be numbered A.5 and shall describe the Contractor's measuring and test equipment calibration plan in compliance with ISO 10012:2003. The description shall include intervals of calibration and delineation of the analysis utilised to determine a need for calibration between normal cycles.

(2) The method of certification of production jigs, tooling, and fixtures used in quality inspection shall be described.

(3) The Contractor shall describe the degree of training of personnel for quality duties and the method of assuring quality positions are manned by competent personnel.

8.5.4. Incoming Quality

(1) This paragraph shall be numbered A.6 and shall describe in detail the system for controlling of the quality of incoming raw materials and component items.

(2) The description shall include a delineation of the requirements to be imposed upon (flowed-down to) Subcontractors to maintain proper quality assurance programs in compliance with AQAP-2110 within their respective organisations.

(3) The Hardware Quality Plan shall denote in detail any sampling plans and any other statistical techniques applicable for Inspection for all categories of purchased supplies such as subsystems, components, and raw materials.

8.5.5. Statistical Quality Control

(1) This paragraph shall be numbered A.7 and shall fully describe any statistical methods to be applied. The Hardware Quality Plan shall delineate statistical sampling techniques, including references of manuals and handbooks utilised. The description shall be sufficiently complete to allow duplication by Purchaser inspectors.

8.5.6. Non-conforming Material

(1) This paragraph shall be numbered A.8 and shall provide a procedure for the control of non-conforming material in conformance with AQAP-2110, Edition 3, paragraph 8.3. The Purchaser reserves the right to reject non-conforming products as stated in AQAP-2110, Edition 3, paragraph 9.2.

8.5.7. Commercial Off the Shelf

(1) This paragraph shall be numbered A.9 and shall describe the Contractor's process and plans for performing QA on all Commercial Off The Shelf Systems, Subsystems, Hardware, Software, and Firmware.

8.6. Annex B Software Project Quality Plan

(1) Annex B shall identify the organisational structure, processes, and specific procedures to be used by the Contractor to perform activities related to the Software Quality System and Software Quality Management Activities specified by AQAP-2210, Edition 1. This plan will be used to evaluate the Contractor's plans for implementing the Software Quality Program. It shall completely describe all aspects of the Contractor's plans to conduct Software Quality Management Activities as described in AQAP-2210, Edition 1, paragraph 2.2.2. The SPQP shall be tailored to reflect the specific cases of software application which are relevant and delineated in AQAP-2210, Edition 1, paragraph 1.2.1, sub-paragraphs a., b., c., d., and e.

8.7. Annex C Testing, Installation, and Check-out Quality Plan

(1) Annex C shall identify and explain the organisational structure, resources, processes, procedures, and activities planned to be used by the Contractor with respect to the specific involvement of the Contractor's Quality Organization in terms of the specific quality assurance monitoring and control activities to be carried out covering all major aspects such as performance of Inspections, Verifications, Installation and Check-out, Testing, Configuration Audits, Validation, to support the successive stages of product realisation (Reference AQAP-2110, Section 7.0). This section shall also include a description of Project Management aspects such as how the implementation of specific tasks and milestones will be monitored and controlled to assure proper integration of the equipment. Assignment of the respective quality responsibilities shall be explained.

8.8. Annex D Quality Engineering

(1) Annex D shall include a description of the processes, procedures, activities, and methods to be employed by the quality organisation for assuring proper and effective coordination and review of engineering documents for clarity, adequacy, inclusion of quality requirements, and configuration control as part of the Product Realisation Process (Reference AQAP 2110, Edition 3, Section 7.0). Specifically, the Contractor shall describe how the quality organisation will be involved in the review of engineering documents.

8.9. Appendices

(1) Appendices may be used to provide information published separately for convenience in document maintenance (e.g. charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendices may be bound as separate documents for ease of handling. Appendices shall be lettered alphabetically (A, B),

and the paragraphs within each appendix shall be numbered as multiples of 10 (e.g. Appendix A, paragraph 10.1, 10.2; Appendix B, paragraph 20.1, 20.2). Pages within each appendix shall be numbered alphanumerically as follows: Appendix A pages shall be numbered A 1, A 2, A 3, Appendix B pages shall be numbered B 1, B 2, B 3.

31. RELIABILITY, AVAILABILITY, MAINTAINABILITY AND TESTABILITY PLAN (NCIA-DI-RAMPROP)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title	2. Identification Number	Based on
RELIABILITY, AVAILABILITY, MAINTAINABILITY AND TESTABILITY PLAN	NCIA-DI-RAMPROP	N/A
3. Description / Purpose 3.1. This plan describes the Contractor's Reliability, Availability, Maintainability and Testability (RAMT) Programme and how it will be conducted, and the controls and monitoring provisions levied on subcontractors, vendors and suppliers. It describes in detail the specific techniques and tasks to be performed and their integration and development in conjunction with other specified related plans. The principle use is to provide the Purchaser a basis for review and evaluation of the Contractors progress, for evaluating proposed techniques and for determining contractual compliance.		
4. Not Used	5. Office of Primary Responsibility NCIA/Air C2 PO - ILS	
6. Application / Interrelationship 6.1. The RAMT Programme Plan shall include those provisions described in Task 101 of MIL-STD-785, Task 101 of MIL-STD-470 and Task 101 of MIL-STD-2165.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Reference documents.

(1) The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices and revisions shall be as specified in the contract.

8.2. Format.

(1) Contractor format is acceptable subject to approval by the Purchaser.

8.3. Content.

(1) The RAMT Programme Plan shall provide a rational presentation / consolidation of programme elements as required by Task 101 of MIL-STD-785, Task 101 of MIL-STD-470, and Task 101 of MIL-STD-2165. Topics shall be treated in a collective fashion where there are common or similar requirements between activities. The following is a minimum list of topics for collective coverage:

a. RAMT organisation (including an organisation chart) and details of key personnel and their responsibilities;

b. RAMT management tasks and description;

c. RAMT schedules including a milestone chart with (including appropriate interrelationships with significant contract milestones);

d. The method by which the requirements are disseminated to design and associated personnel, subcontractors and suppliers, and the controls and monitoring mechanisms levied under such circumstances;

e. A description of the interrelationships between RAMT tasks, and how these activities are to be integrated within the system design process and with the Integrated Logistic Support processes;

f. The procedures or methods for identification and resolution of problems, and status tracking;

g. A list of reference documents.

(2) The RAMT Programme Plan shall describe how each of the RAMT Programme elements shall be conducted to meet the requirements of the SOW and the specifications. The plan shall address the following:

a. Operational Availability;

b. Reliability;

c. Maintainability; and

d. Testability.

(3) The description of each element shall address the specific / unique programme considerations / constraints, and shall provide an overview of the analysis, modelling and validation activities.(3)

(4) The RAMT Programme Plan shall describe each of the RAMT tasks and sub-tasks to be implemented. Reference shall be made to the Deployable Systems requirements where appropriate.

(5) The RAMT Programme Plan shall provide a description of the models and the modelling techniques to be used.

(6) The RAMT Programme Plan shall also provide a detailed description for each of the following topics:

a. Reliability and maintainability design criteria and source reference;

b. Failure Reporting Analysis and Corrective Action System (FRACAS) data base and model description, and procedures;

c. Failure Review Board (FRB) authority and procedures;

d. Failure Modes, Effects and Criticality Analysis (FMECA) process and models used;

e. Procedures and methods of evaluation to determine the effects of functional testing, storage, handling, packaging, transportation and maintenance;

f. Environmental Stress Screening (ESS) application criteria, procedures and implementation plan;

g. Reliability Development/Growth Test (RDGT) application criteria, method of analysis and implementation plan;

h. Reliability Qualification Test (RQT) application criteria, process and implementation plan;

i. Maintainability evaluation procedures and implementation plan.

j. RAMT Qualification Programme.

(7) The RAMT Programme Plan shall provide a glossary / definition of terms. The definitions for attributable and non-attributable hardware failures are to be consistent with MIL-STD-781 chargeable failures. A list of acronyms shall also be included.

32. RELIABILITY, AVAILABILITY, MAINTAINABILITY, TESTABILITY AND SAFETY PROGRAMME STATUS REPORT (NCIA-DI-RAMSTAR)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title RELIABILITY, AVAILABILITY, MAINTAINABILITY, TESTABILITY AND SAFETY PROGRAMME STATUS REPORT	2. Identification Number NCIA-DI-RAMSTAR	Based on N/A
3. Description / Purpose 3.1. Enables the Purchaser to monitor and evaluate the Contractor's progress and accomplishments in conducting the Reliability, Availability, Maintainability and Testability (RAMT) and Safety programmes.		
4. Not Used	5. Office of Primary Responsibility NCIA/Air C2 PO - ILS	
6. Application / Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Reference documents.

(1) The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices and revisions shall be as specified in the contract.

8.2. Format.

(1) Contractor format is acceptable subject to approval by the Purchaser. The report shall include a graphical presentation wherever appropriate.

8.3. Content.

(1) The report shall provide a status for each RAMT and Safety programme activity defined by the statement of work or the RAMT and Safety programme plans. The report shall address the specific programme considerations, and shall address the following information as a minimum:

a. The work accomplished and results obtained during the reporting period;

b. Summaries of the status of previously reported programmes which were unresolved at the close of the last reporting period (provide same data as for c. below).

c. A list of current problems containing:

- A serial number assigned to identify the problem,
- The date on which the problem was first detected,
- A short statement identifying the problem and its effect,
- The activity assigned to work on the problem,
- The expected resolution and date to be achieved,
- A short statement of accomplishment to date or a cross reference to other reports,
- A description of how the problem was resolved,
- The date the problem was resolved.

d. A specific accounting of each design review action item remaining open at the end of the last report period including a full description of the action taken on each item

e. Identification of observed or potential problems introduced by Purchaser Furnished Equipment and descriptions of accommodations or improvement changes deemed necessary to make such equipment compatible.

(2) The report shall include a listing of reliability critical items and their suppliers.

(3) The report shall provide a summary of the Failure Reporting Analysis and Corrective Action System (FRACAS), presenting both reliability and maintainability data as follows:

a. Statement of reporting period.

b. A summary table which outlines the following:

- Total number of failures occurring to date; and of this number, the total number of failures during reporting period;
- Total number of attributable failures occurring to date, the number of these occurring during reporting period; and
- Total number of non-attributable failures occurring to date; the number of these occurring during report period.

c. The following Tables:

i. Table 1 - "Analysis of Deficiencies ". This table shall contain a summary overview by CSCI HWCI of all the failures reported to date;

ii. Table II - "Reliability and Maintainability Tabulation". This table shall contain the following columns:

- A breakdown to major assemblies of equipment;
- "Operating Time" - (Month/accumulated);
- "No. of Attributable Failures/Total" - (Month/ accumulated) - Relevancy is based on the effect on the listed Configuration Item (not on effect of the System);
- "Repair Time/No. of Repair Times Reported" -(Month/accumulated) - Total number of reported hours and the number of failures included therein;
- "MTBF" - (Month/accumulated) - For each item listed (based on Attributable Failures); and
- "MTTR" - (Month/accumulated) - For each item listed

iii. Table III - "Major Problems". This table shall contain a chronological listing of failure problems of major concern at various stages of failure analysis and investigations, except those closed out in previous periods.

iv. Table IV - "Corrective Action". This table shall contain a listing of corrective actions taken to close out major failure reporting problems during the past reporting period.

v. Table V - "Pattern Failures". This table shall contain a listing of Pattern Failures defined as repetitive failure whose occurrence indicates a common cause. The existence of a pattern failure is assumed at the second occurrence of a failure.

d. Appendix I - Failure Report. The report shall contain a table of all unresolved and new failures occurring over the past reporting period. Each report shall provide the following data as a minimum:

- Occurrence date - Month/Day/Year,
- Identification of failed item by name,
- Equipment - Identification of equipment by name to lowest replaceable unit,
- Repair location of failed item,
- Category of failure (attributable/non-attributable),
- Failure cause,
- Maintenance task identification,
- Description of further action required to dispose of failure,

- Maintenance time necessary for corrective actions (or maintenance man-hours, where appropriate),
- BIT and diagnostic effectiveness data (per cent of fault detectable, isolatable, false alarm rates),
- Summary narrative discussing failure.

33. Site As Built Drawings (NCIA-DI-SPABD)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title Site As Built Drawings	2. Identification Number NCIA-DI-SPABD0	Based on N/A
3. Description / Purpose 3.1. This DID describes the requirement for the Contractor to provide detailed Site Installation As Built Drawings, to provide a written record of what equipment, infrastructure, etc was installed at each of the NATO sites. 3.2. Given the differing National SCIDA requirements of each of the Alliance Nations, it is not possible to provide a single template for the SABD. Instead the Contractor is to provide as much detailed information about equipment installations, locally provided support arrangements etc, to enable an accurate record for each site installation to be broken out at a later date.		
	5. Office of Primary Responsibility NCI Agency/PRD/T&E	
6. Application / Interrelationship Variable data formats and structure, dependent on NATO Territorial Host Nation requirements. This DID is linked to the Site Survey CDRL.		
7. Applicable Forms In Microsoft Office 2010 and Microsoft VISIO formats.		

8. The SPADB shall contain::

8.1 A list of all equipment installed:

a. including NSNs,

b. individual Manufacture equipment serial numbers.

c. Make, Model, Series Number

8.2 As Build Drawings, including detailed descriptions of rack Mounting locations.

8.3. Site specific wiring diagrams, building plans and locations of installed equipment.

34. SITE INSTALLATION ENGINEERING PLAN (NCIA-DI-SPIEP)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title SITE INSTALLATION ENGINEERINGPLAN	2. Identification Number NCIA-DI-SPIEP	Based on US-DOD-DI-IPSC-81428
3. Description / Purpose 3.1. The Software Installation Plan (SIP) is a plan for installing of equipment at the operational sites, including preparations, user training, and conversion/adaptation of/ from existing systems.		
4. Not Used	5. Office of Primary Responsibility NCIA/Air C2 PO	
6. Application / Interrelationship 6.1. The SIEP will include site specific details of locally provided infrastructure, power, environment eqpt etc. These details will be determined as part of the individual Site Survey visit as each THN site will provide differing levels of support and rack equipment space.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Content requirements:

8.1.1. Scope. This section shall be divided into the following paragraphs.

8.1.1.1. Identification.

(1) This paragraph shall contain a full identification of the system and software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

8.1.1.2. Site Installation overview.

(1) This paragraph shall briefly state the agreed Site support criteria determined from the Site Survey. It shall describe the general Engineering installation activities for that particular site, including equipment to be installed, support arrangements in place and site adaptation activities and civil works required to install the VL system.

(2) The SIEP will provide the Contractor's agreed installation schedule, agreed installation activities and provide a detailed account of equipment, documentation, training, and site specific agreed arrangements between the Contractor and the Site Commander, in regards the conduct, period and impact VL installation activities will have on current operational activities.

(3) The SIEP, will provide full details of Contractor or Sub-contractor personnel carrying out the installation work and provide relevant Security Accreditation Personnel details for those personnel attending each site installation.

8.1.1.3 National Requirements.

(1) Each NATO Alliance Nation will have specific requirements for the conduct of Engineering activities at their National sites. In addition to the specific CDRLs within the project SOW, the contractor is to obtain clear guidance during the Site Survey or specific additional national requirements; including Health and Safety, Engineering Protocols, and legislation which must be agreed and included in the individual Site Installation Engineering Plan.

8.1.2. Tasks. This paragraph shall list and describe in general terms each task involved in the site installation. Each task description shall identify the organisation that will accomplish the task, usually either the user, computer operations or the developer. The task list shall include such items as:

- Providing overall planning, co-ordination, and preparation for installation
- Providing personnel for the installation team
- Ensuring that all manuals applicable to the installation are available when needed
- Ensuring that all other prerequisites have been fulfilled prior to the installation
- Providing computer support and technical assistance for the installation
- Providing for conversion from the current system

8.1.3.5. Personnel. This paragraph shall describe the number, type, and skill level of the personnel needed during the installation period, including the need for multi shift operation, clerical support, etc.

8.1.3.6. Security and privacy. This paragraph shall contain an overview of the security and privacy considerations associated with the system

8.1.4. (Site name). This paragraph shall identify a site or set of sites and shall be divided into the following subparagraphs to discuss those sites. Multiple sites may be discussed together when the information for those sites is generally the same.

8.1.4.1.1. Schedule. This paragraph shall present a schedule of tasks to be accomplished during installation. It shall depict the tasks in chronological order with beginning and ending dates of each task and supporting narrative as necessary.

8.1.4.1.2. Equipment inventory. This paragraph shall provide an inventory of the HW/SW needed to support the installation. The hardware and software shall be identified by name, identification number, version number, release number, configuration, and security classification, as applicable. This paragraph shall indicate whether the software is expected to be on site or will be delivered for the installation and shall identify any software to be used only to facilitate the installation process.

8.1.4.1.3. Facilities. This paragraph shall detail the physical facilities and accommodations needed during the installation period. This description shall include the following, as applicable:

- Hardware that must be operational and available

8.1.4.1.4. Installation team. This paragraph shall describe the composition of the installation team. Each team member's tasks shall be defined.

8.1.4.1.5. Installation procedure. This paragraph shall provide step-by-step procedures for accomplishing the installation. References may be made to other documents, such as operator manuals. Safety precautions, marked by WARNING or CAUTION, shall be included where applicable. The procedures shall include the following, as applicable:

- Installing the hardware and software
- Checking out the software once installed
- Initialising databases and other software with site-specific data
- Conversion from the current system, possibly involving running in parallel
- Dry run of the procedures in operator and user manuals (e.g. SCOM; SIOM; SUM)

8.1.4.1.6. Data update procedures. This paragraph shall present the data update procedures to be followed during the installation period. When the data update procedures are the same as normal updating or processing procedures, reference may be made to other documents, such as operator manuals.

8.1.5. Site-specific information for software users. This section shall provide installation planning pertinent to users of the software. When more than one type of user is involved, for example, users at different positions, performing different functions, or in different organisations, a separate section (Sections 5 through n) may be written for each type of user and the section titles modified to reflect each user.

8.1.5.1. (Site name). This paragraph shall identify a site or set of sites and shall be divided into the following subparagraphs to discuss those sites. Multiple sites may be discussed together when the information for those sites is generally the same.

8.1.5.1.1. Schedule. This paragraph shall present a schedule of tasks to be accomplished by the user during installation. It shall depict the tasks in chronological order including beginning and ending dates for each task and supporting narrative as necessary.

8.1.5.1.2. Data update procedures. This paragraph shall be divided into subparagraphs to present the user's data update procedures to be followed during the installation period. When update procedures are the same as normal processing, reference may be made to other documents, such as user manuals, and to Section 4 of this document. E.g. User Directories, VoIP telephone extension number directories etc.

8.1.6. Notes. This section shall contain any general information that aids in understanding this document (e.g. background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of terms and definitions needed to understand this document.

8.1.7. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g. charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendices may be bound as separate documents for ease in handling. Appendices shall be lettered alphabetically (A, B, etc.).

35. SITE ADAPTATION REQUIREMENTS DRAWINGD (NCIA-DI-SPSARD)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title SITE ADAPTATION REQUIREMENTS DRAWINGD	2. Identification Number NCIA-DI-SPSARD	Based on US-DOD-DI-DRPR-81000
3. Description / Purpose 3.1. Site Adaptation Requirement Drawings and associated equipment Lists provide engineering data to support competitive procurement and maintenance for hardware. These drawings represent the highest level of design disclosure.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO	
6. Application / Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. General.

(1) These drawings shall:

- Reflect the individual specific site installation requirements tailored to the national needs of each individual nation.
- Provide the engineering data for Logistics Support arrangements for the installed VL equipment/products.
- Provide the necessary data to review additional civil works and or system adaptations required as a particular site.
- Provide the necessary detail of site modifications from the designed VL system to take in to account specific site needs not already catered for in the system design.

(2) Determination of specific requirements for individual sites shall be carried out during individual site surveys, which are subject to a separate CDRL and DID.

8.2. Product Drawings and Associated Equipment Lists

(1) The Product Drawings and Associated Equipment Lists shall be established in accordance with the requirements of MIL-STD-100.

8.3 The format of the documents shall be in accordance with STANAG 4661.

36. SITE INSPECTION REPORTS (NCIA-DI-SPSIR)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title SITE INSPECTION REPORTS	2. Identification Number NCIA-DI-SPSIR	Based on US-DOD-DI-DRPR-81000
3. Description / Purpose 3.1. Product and associated equipment lists, drawings will provide compliance with local national engineering and installation regulations for each site installation. These reports, issued post installation, verify all project tasks, site clean-up and installation activities and requirements have been met which are not covered within the T&E VCRI. 3.2. Site inspection reports will need the approval of the Purchased and co-ordinated approval of the local site Commander, to verify that the Contractor/Sub-contractor have carried out the required activities and to the satisfaction of the local base commander in accordance with pre-arranged local requirements established during the initial site Survey.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO Nationally Nominated Local Military Commander	
6. Application / Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. General.

(1) The Site Inspection Report, is a written verification as agreed by the Contractor , Purchaser and Local Site Commander, that the VL installation activities and post installation site clean-up activities have been carried out in accordance with the Site Implementation Engineering Plan.

(2) Verification that the following has occurred:

a. Site Clean-up carried out.

b. Make good all civil work repairs and decorations following installation of equipment.

c. Certified delivery of Training, relevant documentation and spares.

d. Certification of the Safety and Security Conduct of all Contractor and Sub-contractor personnel whilst at the site, during the installation phase.

e. Removal of all Contractor or Sub-contractor tools and installation equipment.

f. Return of specific nationally provided site documentation, required for the installation of the VL system.

g. Certification of National Special Terms and Conditions, regarding national Security procedures have been adhered to by the Contractor and Sub-contractor.

37. SITE SURVEY REPORTS (NCIA-DI-SPSSR)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title SITE SURVEY REPORTS	2. Identification Number NCIA-DI-SPSSIR	Based on US-DOD-DI-DRPR-81000
3. Description / Purpose 3.1. Product Report on the findings and locally agreed procedures including agreed local support, available infrastructure and/or additional equipment(s) required to meet the VL project requirements. Lists provide engineering data to support procurement and maintenance for hardware.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO Nationally Nominated Local Military Commander	
6. Application / Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. General.

(1) Site Surveys are carried out to determine individual site requirements that are not covered under the projects requirements.

(2) Additional, National site regulations may be applicable to the implementation of site installations which need to be determined during the Site Survey.

(3) Available infrastructure, power, Server rack space may/may not be available and the Site Survey is the vehicle to identify the delta between accounted for overall project requirements and derived national site requirements, which will allow the tailoring of installation activities and the SIEP by the Contractor.

8.2 Approval

(1) The Site Survey report provides the vehicle for approval of additional activities by the purchaser to the Contractor and agreement between the Purchaser and Nation to determine if additional funding may be required.

(2) The Site Survey report should be provided in Microsoft Office 2010 format, providing detailed descriptions of:

a. Site/Building Layout Drawings

b. Available infrastructure

c. Additional Project Installation Requirements

d. Site Survey Attendees

e. National POCs

f. Nationally Agreed provision of services, power, space, environmental requirements,

g. Current TEMPEST Security Zoning authorizations,

h. Additional National Security Requirements.

i. Additional National Engineering Requirements.

i. Identification of National Defence Network architectures e.g. ISDN/IP

ii Identification of available NDN connectivity bandwidth to the NATO NGCS network

j. Additional Transportation and Packaging Requirements, including national Customs clearance and Import/Export Licences and costs..

k. Additional remarks

38. INTERFACE DESIGN DESCRIPTIONS (NCIA-DI-SWIDD)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title INTERFACE DESIGN DESCRIPTION	2. Identification Number NCIA-DI-SWIDD	Based on US-DOD-DI-IPSC-81436
3. Description / Purpose 3.1. The Interface Design Description (IDD) describes the interface characteristics of one or more systems, subsystems, Hardware Configuration Items (HWCIs), Computer Software Configuration Items (CSCIs), manual operations or other system components. An IDD may describe any number of interfaces. 3.2. The IDD can be used to supplement the System/Subsystem Design Description (SSDD), Software Design Description (SDD), and Database Design Description (DBDD). The IDD and its companion Interface Requirement Specification (IRS) serve to communicate and control interface design decisions.		
4. Not Used	5. Office of Primary Responsibility	
6. Application / Interrelationship 6.1. The IRS specifies interface requirements; the IDD describes interface characteristics to meet those requirements. The IDD may reference the IRS to avoid repeating information.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. This section shall be divided into the following paragraphs.

8.1.1.1. Identification. This paragraph shall contain a full identification of the system(s), the interfacing entities, and interfaces to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

8.1.1.2. System overview. This paragraph shall briefly state the purpose of the system(s) and software to which this document applies. It shall describe the general nature of the system and software; summarise the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

8.1.1.3. Document review. This paragraph shall summarise the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

8.1.2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Purchaser stocking activities.

8.1.3. Interface design. This section shall be divided into the following paragraphs to describe the interface characteristics of one or more systems, subsystems, configuration items, manual operations, or other system components. If part or all of the design depends upon system states or modes, this dependency shall be indicated. If design information falls into more than one paragraph, it may be presented once and referenced from the other paragraphs. If part or all of this information is documented elsewhere, it may be referenced. Design conventions needed to understand the design shall be presented or referenced.

8.1.3.1. Interface identification and diagrams. For each interface identified in 8.1.1.1, this paragraph shall state the project-unique identifier assigned to the interface and shall identify the interfacing entities (systems, configuration items, users, etc.) by name, number, version, and documentation references, as

applicable. The identification shall state which entities have fixed interface characteristics (and therefore impose interface requirements on interfacing entities) which are being developed or modified (thus having interface requirements imposed on them). One or more interface diagrams shall be provided, as appropriate, to depict the interfaces.

8.1.3.2. (Project-unique identifier of interface).

(1) This paragraph (beginning with 3.2) shall identify an interface by project-unique identifier, shall briefly identify the interfacing entities, and shall be divided into subparagraphs as needed to describe the interface characteristics of one or both of the interfacing entities. If a given interfacing entity is not covered by this IDD (for example, an external system) but its interface characteristics need to be mentioned to describe interfacing entities that are, these characteristics shall be stated as assumptions or as "When [the entity not covered] does this, [the entity that is covered] will ...". This paragraph may reference other documents (such as data dictionaries, standards for protocols, and standards for user interfaces) in place of stating the information here. The design description shall include the following, as applicable, presented in any order suited to the information to be provided, and shall note any differences in these characteristics from the point of view of the interfacing entities (such as different expectations about the size, frequency, or other characteristics of data elements):

a. Priority assigned to the interface by the interfacing entity(ies)

b. Type of interface (such as real-time data transfer, storage-and-retrieval of data, etc.) to be implemented

c. Characteristics of individual data elements that the interfacing entity(ies) will provide, store, send, access, receive, etc., such as:

i. Names/identifiers
- Project-unique identifier
- Non-technical (natural-language) name
- VOICE LOOP standard data element name
- Technical name (e.g., variable or field name in code or database)
- Abbreviation or synonymous names

ii. Data type (alphanumeric, integer, etc.)

iii. Size and format (such as length and punctuation of a character string)

iv. Units of measurement (such as meters, dollars, nanoseconds

v. Range or enumeration of possible values (such as 0-99)

vi. Accuracy (how correct) and precision (number of significant digits)

vii. Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply

viii. Security and privacy constraints

ix. Sources (setting/sending entities) and recipients (using/receiving entities)

d. Characteristics of data element assemblies (records, messages, files, arrays, displays, reports, etc.) that the interfacing entity(ies) will provide, store, send, access, receive, etc., such as:

i. Names/identifiers
- Project-unique identifier
- Non-technical (natural language) name
- Technical name (e.g., record or data structure name in code or database)
- Abbreviations or synonymous names

ii. Data elements in the assembly and their structure (number, order, grouping)

iii. Medium (such as disk) and structure of data elements/assemblies on the medium

iv. Visual and auditory characteristics of displays and other outputs (such as colours, layouts, fonts, icons and other display elements, beeps, lights)

v. Relationships among assemblies, such as sorting/access characteristics

vi. Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the assembly may be updated and whether business rules apply

vii. Security and privacy constraints

viii. Sources (setting/sending entities) and recipients (using/receiving entities)

e. Characteristics of communication methods that the interfacing entity(ies) will use for the interface, such as:

i. Project-unique identifier(s)

ii. Communication links/bands/frequencies/media and their characteristics

iii. Message formatting

iv. Flow control (such as sequence numbering and buffer allocation

v. Data transfer rate, whether periodic/aperiodic, and interval between transfers

vi. Routing, addressing, and naming conventions

vii. Transmission services, including priority and grade

viii. Safety/security/privacy considerations, such as encryption, user authentication, compartmentalisation, and auditing

f. Characteristics of protocols the interfacing entity(ies) will use for the interface, such as:

i. Project-unique identifier(s)

ii. Priority/layer of the protocol

iii. Packeting, including fragmentation and reassembly, routing, and addressing

iv. Legality checks, error control, and recovery procedures

v. Synchronisation, including connection establishment, maintenance, termination

vi. Status, identification, and any other reporting features

g. Other characteristics, such as physical compatibility of the interfacing entity(ies) (dimensions, tolerances, loads, voltages, plug compatibility, etc.)

8.1.4. Requirements traceability.

(1) This paragraph shall contain:

a. Traceability from each interfacing entity covered by this IDD to the system or CSCI requirements addressed by the entity's interface design.

b. Traceability from each system or CSCI requirement that affects an interface covered in this IDD to the interfacing entities that address it.

8.1.5. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

8.1.6. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g. charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendices may be bound as separate documents for ease in handling. Appendices shall be lettered alphabetically (A, B, etc.)

39. SOFTWARE ARCHITECTURE DESCRIPTION (NCIA-DI-SWSAD)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title SOFTWARE ARCHITECTURE DESCRIPTION	2. Identification Number NCIA-DI-SWSAD	Based on N/A
3. Description / Purpose 3.1. The Software Architecture Description (SAD) describes at a high level of abstraction the software architecture and explains by a few concepts the architectural elements, critical interfaces, and major risks being mitigated. 3.2. The SAD is used as the basis for designing the software. It provides the Purchaser visibility into the demonstrated feasibility, performance and scalability of the architecture.		
4. Not Used	5. Office of Primary Responsibility NCIA/Air C2 PO – CM/ILS	
6. Application / Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Content requirements:

8.1.1. Scope. This section shall be divided into the following paragraphs.

8.1.1.1. Identification. This paragraph shall contain a full identification of the system and software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

8.1.1.2. System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarise the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

8.1.1.3. Document overview. This paragraph shall summarise the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

8.1.2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Purchaser stocking activities.

8.1.3. Software Architecture

8.1.3.1. Architectural Goals and Constraints.

8.1.3.2. Logical view.

(1) This section provides the object-oriented decomposition of the software addressing the system's functional requirements:

- Objects, classes, class utilities
- Grouping into class categories
- Connectivity by inheritance, association, containment, etc.
- Focus on abstraction, encapsulation, uniformity

- Identification of common classes

8.1.3.3. Process view.

(1) This section provides the dynamic, run-time decomposition of the software addressing the system's availability, reliability, scalability, integrity, performance, system management, synchronisation requirements:

- Tasks, processes
- Virtual nodes
- Grouping in process groups
- Logical networks of processes
- Communication: synchronous/asynchronous, implicit, broadcast

8.1.3.4. Development view.

(1) This section provides the static module and subsystem decomposition of the software organised to reflect the Contractor's approach of software development, team organisation, subcontracting, reuse potential; inclusion of COTS products, software configuration control/management including releases, change control:

- Modules
- Grouping of modules into subsystems, layers
- Organisation of subsystems in layers to:
  - Reduce coupling and visibility
  - Increase robustness
- Connectivity by "need to use", visibility, imports

8.1.3.5. Physical view.

(1) This section provides the software to hardware mapping addressing the system's throughput, performance, fault-tolerance, availability requirements:

- Decomposition into processing nodes
- Role of a node
- Interconnection, topology
- Allocation of processes onto nodes
- Tactical configuration
  - Load sharing
  - Primary/back-up
  - Parallelism

8.1.3.6. Key scenarios.

(1) This section represents the high-level abstraction of the large and complex set of requirements. Key scenarios are use case descriptions (1) to illustrate and demonstrate how all of the architecture components work together in the proposed architecture and (2) to be executed upon a skeleton prototype implementation to validate the architecture. Each key scenario shall be described by:

a. Name

b. Description

c. Stimulus and response (i.e. instances of use cases)

d. Relation to requirements

e. Reason for selection (risk, coverage)

f. Limitations/restrictions

g. Script

h. Class diagrams and object scenario diagrams

j. Dynamic and static architecture

k. Test conditions

8.1.3.7. Architecture quality.

(1) This section describes the quality characteristics of the proposed architecture in terms of:

a. Simplicity

b. Resilience

c. Efficiency

d. Scalability

e. Aesthetics/style

f. Volatility

g. Cohesion

h. Coupling

8.1.4. Requirements traceability.

(1) Traceability from the requirements of the SRS to the software architectural component to which it is allocated

(2) Traceability from software architectural components to the requirements of the SRS.

8.1.5. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

8.1.6. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g. charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendices may be bound as separate documents for ease in handling. Appendices shall be lettered alphabetically (A, B, etc.).

40. **SOFTWARE DESIGN DESCRIPTION (NCIA-DI-SWSDD)**

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title SOFTWARE DESIGN DESCRIPTION	2. Identification Number NCIA-DI-SWSDD	Based on US-DOD-DI-IPSC-81435
3. Description / Purpose 3.1. The Software Design Description (SDD) describes the design of a Computer Software Configuration Item (CSCI). It describes the CSCI-wide design decisions, the CSCI architectural design, and the detailed design needed to implement the software. The SDD may be supplemented by Interface Design Descriptions (IDDs) and Database Design Descriptions (DBDDs) as described in 6.2 below. 3.2. The SDD, with its associated IDDs and DBDDs, is used as the basis for implementing the software. It provides the acquirer visibility into the design and provides information needed for software support.		
4. Not Used	5. Office of Primary Responsibility	
6. Application / Interrelationship 6.1. Design pertaining to interfaces may be presented in the SDD or in IDDs. Design pertaining to databases may be presented in the SDD or in DBDDs.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Content requirements. Content requirements begin on the following page. The numbers shown designate the paragraph numbers to be used in the document. Each such number is understood to have the prefix "8.1" within this DID. For example, the paragraph numbered 1.1 is understood to be paragraph 8.1.1.1 within this DID.

8.1.1. Scope. This section shall be divided into the following paragraphs.

8.1.1.1. Identification. This paragraph shall contain a full identification of the system and software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

8.1.1.2. System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarise the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

8.1.1.3. Document overview. This paragraph shall summarise the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

8.1.2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Purchaser stocking activities.

8.1.3. CSCI-wide design decisions.

(1) This section shall be divided into paragraphs as needed to present CSCI-wide design decisions, that is, decisions about the CSCI's behavioural design (how it will behave, from a user's point of view, in meeting its requirements, ignoring internal implementation) and other decisions affecting the selection and design of the software units that make up the CSCI. If all such decisions are explicit in the CSCI requirements or are deferred to the design of the CSCI's software units, this section shall so state.

Design decisions that respond to requirements designated critical, such as those for safety, security, or privacy, shall be placed in separate subparagraphs. If a design decision depends upon system states or modes, this dependency shall be indicated. Design conventions needed to understand the design shall be presented or referenced. Examples of CSCI-wide design decisions are the following:

a. Design decisions regarding inputs that the CSCI will accept and outputs it will produce, including interfaces with other systems, HWCIs, CSCIs, and manual operations (4.3.x of this DID identifies topics to be considered in this description). If part of all of this information is given in Interface Design Descriptions (IDDs) they may be referenced.

b. Design decisions on CSCI behaviour in response to each input or condition, including actions the CSCI will perform, response times and other performance characteristics, description of physical systems modelled, selected equations/algorithms/rules, and handling of unallowed inputs or conditions.

c. Design decisions on how databases/data files will appear to the user (4.3.x of this DID identifies topics to be considered in this description). If part or all of this information is given in Database Design Description (DBDDs), they may be referenced

d. Selected approach to meeting safety, security and privacy requirements

e. Other CSCI-wide design decisions made in response to requirements, such as selected approach to providing required flexibility, availability, and maintainability

f. Design and programming language(s) decisions to be applicable to this CSCI.

8.1.4. CSCI architectural design. This section shall be divided into the following paragraphs to describe the CSCI architectural design. If part or all of the design depends upon system states or modes, this dependency shall be indicated. If design information falls into more than one paragraph, it may be presented once and referenced from the other paragraphs. Design conventions needed to understand the design shall be presented or referenced.

8.1.4.1. CSCI components.

(1) This paragraph shall:

a. Identify the software units that make up the CSCI. Each software unit shall be assigned a project-unique identifier (Note: A software unit is a logical element in the design of a CSCI; for example, a major subdivision of a CSCI, a component of that subdivision, a class, object, module, function, routine, or database. Software units may occur at different levels of a hierarchy and may consist of other software units. Software units in the design may or may not be in one-to-one relationship with the code and data entities (routines, procedures, databases, data files, etc.) that implement them or with the computer files containing those entities. A database may be treated as a CSCI or as a software unit. The SDD may refer to software units by any name(s) consistent with the design methodology being used.)

b. Show the static (such as "consists of") relationship(s) of the software units. Multiple relationships may be presented, depending on the selected software design methodology (for example, in an object-oriented design, this paragraph may present the class and object structures as well as the module and process architectures of the CSCI).

c. State the purpose of each software unit and identify the CSCI requirements and CSCI-wide design decisions allocated to it. (Alternatively, the allocation of requirements may be provided in 6.a). State rationale and extent for COTS adaptation and for Non-COTS Reused Software (NCRS) (minor and major) modifications.

d. Identify each software unit's development status/type (such as COTS software, COTS Software Adaptation, Non-COTS Reused Software (NCRS) without modifications, NCRS with minor modifications, NCRS with major modifications, newly developed software, software to be developed for reuse, software planned for Build N, etc.). For existing design or software, the description shall provide identifying information, such as name, version, documentation references, library, etc.

e. Describe the CSCI's (and as applicable, each software unit's) planned utilisation of computer hardware resources (such as processor capacity, memory capacity, input/output device

capacity, auxiliary storage capacity, and communications/network equipment capacity). The description shall cover all computer hardware resources included in resource utilisation requirements for the CSCI, in system-level resource allocations affecting the CSCI, and in resource utilisation measurement planning in the Software Development Plan. If all utilisation data for a given computer hardware resource are presented in a single location, such as in one SDD, this paragraph may reference that source. Included for each computer hardware resource shall be:

i. The CSCI requirements or system-level resource allocations being satisfied

ii. The assumptions and conditions on which the utilisation data are based (for example, typical usage, first-case usage, assumption of certain events)

iii. Any special considerations affecting the utilisation (such as use of virtual memory, overlays, or multiprocessors or the impacts of operating system overhead, library software, or other implementation overhead)

iv. The units of measure used (such as percentage of processor capacity, cycles per second, bytes of memory, kilobytes per second)

v. The level(s) at which the estimates or measures will be made (such as software unit, CSCI, or executable program)

f. Identify the program library in which the software that implements each software unit is to be placed

8.1.4.2. Concept of execution. This paragraph shall describe the concept of execution among the software units. It shall include diagrams and descriptions showing the dynamic relationship of the software units, that is, how they will interact during CSCI operation, including, as applicable, flow of execution control, data flow, dynamically controlled sequencing, state transition diagrams, timing diagrams, priorities among units, handling of interrupts, timing/sequencing relationships, exception handling, concurrent execution, dynamic allocation/de-allocation, dynamic creation/deletion of objects, processes, tasks, and other aspects of dynamic behaviour.

8.1.4.3. Interface design. This paragraph shall be divided into the following subparagraphs to describe the interface characteristics of the software units. It shall include both interfaces among the software units and their interfaces with external entities such as systems, configuration items, and users. If part or all of this information is contained in Interface Design Descriptions (IDDs), in section 5 of the SDD, or elsewhere, these sources may be referenced.

8.1.4.3.1. Interface identification and diagrams. This paragraph shall state the project-unique identifier assigned to each interface and shall identify the interfacing entities (software units, systems, configuration items, users, etc.) by name, number, version, and documentation references, as applicable. The identification shall state which entities have fixed interface characteristics (and therefore impose interface requirements on interfacing entities) and which are being developed or modified (thus having interface requirements imposed on them). One or more interface diagrams shall be provided, as appropriate, to depict the interfaces.

8.1.4.3.2. (Project-unique identifier of interface)

(1) This paragraph (beginning with 4.3.2) shall identify an interface by project-unique identifier, shall briefly identify the interfacing entities, and shall be divided into subparagraphs as needed to describe the interface characteristics of one or both of the interfacing entities. If a given interfacing entity is not covered by this SDD (for example, an external system) but its interface characteristics need to be mentioned to describe interfacing entities that are, these characteristics shall be stated as assumptions or as "When [the entity not covered] does this, [the entity that is covered] will ...". This paragraph may reference other documents (such as data dictionaries, standards for protocols, and standards for user interfaces) in place of stating the information here. The design description shall include the following, as applicable, presented in any order suited to the information to be provided, and shall note any differences in these characteristics from the point of view of the interfacing entities (such as different expectations about the size, frequency, or other characteristics of data elements):

a. Priority assigned to the interface by the interfacing entity(ies)

b. Type of interface (such as real-time data transfer, storage-and-retrieval of data, etc.) to be implemented

c. Characteristics of individual data elements that the interfacing entity(ies) will provide, store, send, access, receive, etc., such as:

   i. Names/identifiers
      - Project-unique identifier
      - Non-technical (natural-language) name
      - VOICE LOOP standard data element name
      - Technical name (e.g. variable or field name in code or database)
      - Abbreviation of synonymous names

   ii. Data type (alphanumeric, integer, etc.)

   iii. Size and format (such as length and punctuation of a character string)

   iv. Units of measurement (such as meters, dollars, nanoseconds)

   v. Range or enumeration of possible values (such as 0-99)

   vi. Accuracy (how correct) and precision (number of significant digits)

   vii. Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply

   viii. Security and privacy constraints

   ix. Sources (setting/sending entities) and recipients (using/receiving entities)

d. Characteristics of data element assemblies (records, messages, files, arrays, displays, report, etc.) that the interfacing entity(ies) will provide, store, send, access, receive, etc., such as:

   i. Names/identifiers
      - Project-unique identifier
      - Non-technical (natural language) name
      - Technical name (e.g. record or data structure name in code or database)
      - Abbreviations or synonymous names

   ii. Data elements in the assembly and their structure (number, order, grouping)

   iii. Medium (such as disk) and structure of data elements/assemblies on the medium

   iv. Visual and auditory characteristics of displays and other outputs (such as colours, layouts, fonts, icons, and other display elements, beeps, lights)

   v. Relationships among assemblies, such as sorting/access characteristics

   vi. Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the assembly may be updated and whether business rules apply

   vii. Security and privacy constraints

   viii. Sources (setting/sending entities) and recipients (using/receiving entities)

e. Characteristics of communication methods that the interfacing entity(ies) will use for the interface, such as:

   i. Project-unique identifier(s)

   ii. Communication links/bands/frequencies/media and their characteristics

   iii. Message formatting

   iv. Flow control (such as sequence numbering and buffer allocation)

   v. Data transfer rate, whether periodic/aperiodic, and intervals between transfers

vi. Routing, addressing and naming conventions

vii. Transmission services, including priority and grade

viii. Safety/security/privacy considerations, such as encryption, user authentication, compartmentalisation, and auditing

f. Characteristics of protocols that the interfacing entity(ies) will use for the interface, such as:

i. Project-unique identifier

ii. Priority/layer of the protocol

iii. Packeting, including fragmentation and reassembly, routine, and addressing

iv. Legality checks, error control, and recovery procedures

v. Synchronisation, including connection establishment, maintenance, termination

vi. Status, identification, and any other reporting features

g. Other characteristics, such as physical compatibility of the interfacing entity(ies) (dimensions, tolerances, loads, voltages, plug compatibility, etc.)

8.1.5. CSCI detailed design. This section shall be divided into the following paragraphs to describe each software unit of the CSCI. If part or all of the design depends upon system states or modes, this dependency shall be indicated. If design information falls into more than one paragraph, it may be presented once and referenced from the other paragraphs. Design conventions needed to understand the design shall be presented or referenced. Interface characteristics of software units may be described here, in Section 4, or in Interface Design Descriptions (IDDs). Software units that are databases, or that are used to access or manipulate databases, may be described here or in Database Design Descriptions (DBDDs).

8.1.5.1. (Project-unique identifier of a software unit, or designator of a group of software units).

(1) This paragraph shall identify a software unit by project-unique identifier and shall describe the unit. Alternatively, this paragraph may designate a group of software units and identify and describe the software units in subparagraphs. Software units that contain other software units may reference the descriptions of those units rather than repeating information. The description shall include the following information, as applicable.

a. Unit design decisions, if any, such as algorithms to be used, if not previously selected

b. Any constraints, limitations, or unusual features in the design of the software unit

c. The programming language to be used and rationale for its use if other than Ada.

d. If the software unit consists of or contains procedural commands (such as menu selections in a database management system (DBMS) for defining forms and reports, on-line DBMS queries for database access and manipulation, input to a graphical user interface (GUI) builder for automated code generation, commands to the operating system or shell scripts), a list of the procedural commands and reference to user manuals or other documents that explain them.

e. If the software unit contains, receive, or outputs data, a description of its inputs, outputs and other data elements and data element assemblies, as applicable. Paragraph 4.3.x of this DID provides a list of topics to be covered, as applicable. Data local to the software unit shall be described separately from data input to or output from the software unit. If the software unit is a database, a corresponding Database Design Description (DBDD) shall be referenced; interface characteristics may be provided here or by referencing section 4 of the corresponding Interface Design Description(s).

f. If the software unit contains logic, the logic to be used by the software unit, including, as applicable:

i. Conditions in effect within the software unit when its execution is initiated

ii. Conditions under which control is passed to other software units

iii. Response and response time to each input, including data conversion, renaming, and data transfer operations

iv. Sequence of operations and dynamically controlled sequencing during the software unit's operation, including:

- The method for sequence control
- The logic and input conditions of that method, such as timing variations, priority assignments
- Data transfer in and out of memory
- The sensing of discrete input signals and timing relationships between interrupt operations within the software unit.

v. Exception and error handling

8.1.6. Requirements traceability.

(1) This section shall contain:

a. Traceability from each software unit identified in this SDD to the CSCI requirements of CSCI-wide design decisions allocated to it. (Alternatively, this traceability may be provided in 4.1).

b. Traceability from each CSCI requirement of CSCI-wide design decisions to the software units to which it is allocated

8.1.7. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

8.1.8. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g. charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendices may be bound as separate documents for ease in handling. Appendices shall be lettered alphabetically (A, B, etc.).

41. SOFTWARE DEVELOPMENT PLAN (NCIA-DI-SWSDP)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title SOFTWARE DEVELOPMENT PLAN	2. Identification Number NCIA-DI-SWSDP	Based on US-DOD-DI-IPSC-81427
3. Description / Purpose 3.1. The Software Development Plan (SDP) describes a Contractor's plans for conducting the software development effort. The term "software development" in this DID is meant to include new development, modification, reuse, re-engineering, and all other activities resulting in software products. 3.2. The SDP provides the Purchaser insight into, and a tool for monitoring, the processes to be followed for software development, the methods to be used, the approach to be followed for each activity, project schedules, organisation and resources.		
4. Not used	5. Office of Primary Responsibility	
6. Application / Interrelationship 6.1. Portions of this plan may be bound separately if this approach enhances their usability. Examples include plans for software configuration management and software quality assurance.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Content requirements:

8.1.1. Scope. This section shall be divided into the following paragraphs.

8.1.1.1. Identification. This paragraph shall contain a full identification of the system and software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

8.1.1.2. System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarise the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

8.1.1.3. Document overview. This paragraph shall summarise the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

8.1.1.4. Relationship to other plans. This paragraph shall describe the relationship, if any, of the SDP to other project management plans.

8.1.2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Government stocking activities.

8.1.3. Overview of required work.

(1) This section shall be divided into paragraphs as needed to establish the context for the planning described in later sections. It shall include, as applicable, an overview of:

a. Requirements and constraints on the system and software to be developed

b. Requirements and constraints on project documentation

c. Position of the project in the system life cycle

d. The selected program/acquisition strategy or any requirements or constraints on it

e. Requirements and constraints on project schedules and resources

f. Other requirements and constraints, such as on project security, privacy, methods, standards, interdependencies in hardware and software development, etc.

8.1.4. Plans for performing general software development activities. This section shall be divided into the following paragraphs. Provisions corresponding to non-required activities may be satisfied by the words "Not applicable". If different builds or different software on the project require different planning, these differences shall be noted in the paragraphs. In addition to the content specified below, each paragraph shall identify applicable risks/uncertainties and plans for dealing with them.

8.1.4.1. Software development process. This paragraph shall be divided into subparagraphs as needed to describe the software development process and its underlying non-proprietary, systematic, well documented software engineering methodology which may be comprised of non-proprietary systematic software development methods. The description shall provide information how the operational requirement views (e.g. enterprise, process, location and organisational model views) is linked to the technical system design views (e.g. application, data, technology model views) by an architecture. The description shall identify techniques (e.g. workshops, prototyping, demonstrations) that encourage Purchaser/user involvement in the incremental development of the system and shall identify external test beds to be used, if applicable, in terms of location, configuration, purpose, availability and rationale. The description shall discuss how the software engineering goals of abstraction, information hiding, modularity, localisation, uniformity, completeness and conformability will be achieved. The description shall state how the methodology directly supports software implementation.

8.1.4.1.1. Process Model.

(1) This paragraph shall contain the (business) process model and a plan to implement this process model into a Workflow. The process model shall describe how the Contractor performs the software development including:

a. Graphical representation as a hierarchical task dependent network

b. Association of tools and information with tasks

c. Identification of required work and controls

d. Automated task, event and status presentation.

8.1.4.1.2. Modelling in software development. This paragraph shall describe the modelling to be used in software development and how and to what degree modelling is in support of the selected methodology and its methods to be applied in analysis, design and implementation (see Figure 1). Modelling described shall include at least the following: Requirements Model, Analysis Model, Design Model, and Meta Model. The modelling shall be supported by integrated computer-aided software engineering (CASE) tools such that (a) data from one phase is made available to other phases and (b) data from one tool is made available to other tools. The transitions between the models shall be seamless, i.e. it shall be fully defined how to get from objects in one model to objects in another model and objects of one model shall be traced to objects in another model.

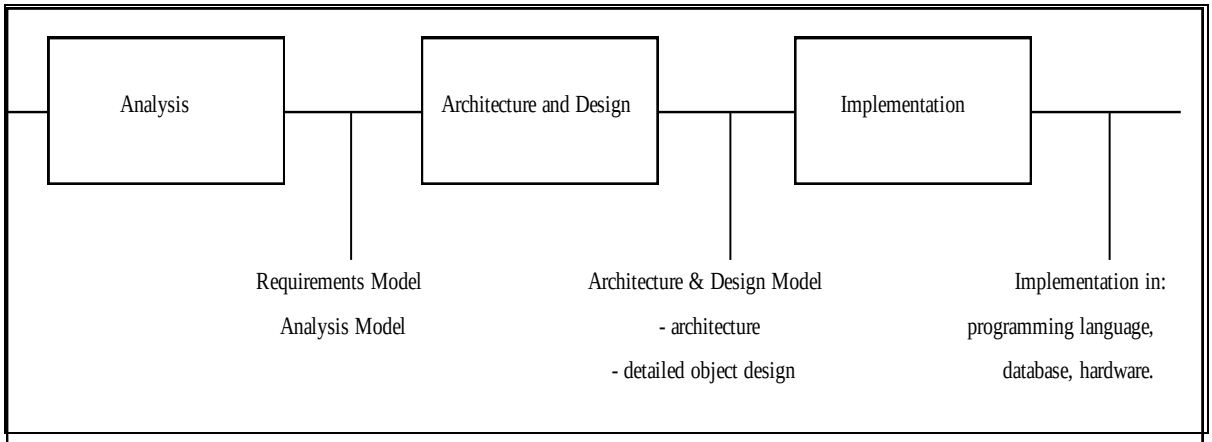


Figure 8.1.4.1.2. - Modelling in Software Development
Figure 1 Modelling in Software Development

8.1.4.1.2.1. Requirements Model. This model shall capture all the functional requirements of the system from a user perspective (in his terminology) and shall be implementation decision independent.

8.1.4.1.2.2. Analysis Model. This model shall structure the system from a logical perspective to identify the (short term and long term) storage and handling of information, the behaviour the system shall adopt (i.e. when and how the system will change states), and the presentation aspects which are directly dependent on the system's environment. This modelling shall assume an ideal implementation environment, i.e. no implementation decision on hardware, data base management system (DBMS), user interface management system (UIMS), programming language etc. is considered. It shall provide a stable object structure, i.e. changes in the system's functionality and interfaces are localised with regards to affected objects, interfaces and controls. Several objects can be grouped to subsystems.

8.1.4.1.2.3. Architecture and Design Model. This model shall adopt and refine the analysis model to the selected implementation environment, i.e. implementation decision on DBMS, UIMS, object-oriented Ada 95 as programming language, reusable software products, COTS hardware etc. shall be incorporated. Design decisions shall as little as possible violate the analysis model. The evolving architecture and design shall preserve and convey, at all levels and as far as possible, an external (or user) view. The detailed object design model shall be implementable, i.e. design objects shall be directly mappable to the module concept (e.g. class for C) of the selected programming language(s). The model shall describe source code groupings with their execution concept, i.e. the concept of their communication during execution. Several objects can be grouped to subsystems.

8.1.4.1.2.4. Meta Model. This model shall provide a unified description of the various modelling products with their elements and the conventions used in modelling. It shall provide a description of the syntax (how it looks), the semantics (what it means) and the pragmatics (heuristics and rules of thumb for using the modelling technique) for each modelling technique. The Meta Model shall clearly identify implementation independent information (e.g. abstract concepts) versus implementation dependent information (e.g. tool dependant structures or conventions).

8.1.4.2. General plans for software development. This paragraph shall be divided into the following subparagraphs.

8.1.4.2.1. Software development methods. This paragraph shall be divided into subparagraphs as needed to describe each software development method to be used. Included shall be descriptions of the manual and automated tools and procedures to be used in support of these methods. The methods shall cover all requirements in SOW paragraph 3.3.1.1. Reference may be made to other paragraphs in this plan if the methods are better described in context with the activities to which they will be applied

8.1.4.2.2. Standards for software products.

(1) This paragraph shall describe or reference the standards to be followed for representing requirements, design, code, test cases, test procedures, and test results. The standards shall cover all contractual clauses concerning this topic. Reference may be made to other paragraphs in this plan if the standards are better described in context with the activities to which they will be applied. It shall contain standards including style guidelines for each design language and programming language to be used. They shall include at a minimum:

a. General principles (identifying imperative rules and less imperative guidelines aiming to embody the spirit of standards and to be used as guidance between explicit standards)

b. Standards for commenting and naming, including

i. Standards for header comments (header comments applicable to files, functions, block of code etc. requiring, for example, name/identifier of the code; version identification; modification history; purpose; requirements and design decisions implemented; notes on the processing (such as algorithms used, assumptions, constraints, limitations, and side effects); and notes on the data (inputs, outputs, variables, data structures, required number and content expectations, etc.)

ii. Standards for other comments (such as commenting a single line of code)

iii. Naming conventions (for variables, parameters, functions, packages, procedures, code files, data files, directories, etc.)

c. Standards for layout (such as indentation, spacing, capitalisation, and order of information for code files, data files, directories, etc.)

d. Standards for and restrictions, if any, on the (programming) language constructs or features usage and data usage

e. Restrictions, if any, on the size and complexity of code aggregates

f. VL User terminal domain-specific human computer interface (HCI) style guide addressing HCI hardware, screen design, windows, menu design, direct manipulation, common features, text, graphics, decision aids, query, embedded training. Structure and level of detail shall be equivalent to US DoD TAFIM, Vol. 8: Department of Defence HCI Style Guide, Version 2.0, 30 June 1994; The common filter criteria style guide identifying generic aids and presentation styles shall be included in the HCI style guide;

g. Other guidelines (e.g. error handling, diagnostics, integrity and recovery, testability, (interface and compiler) portability, localisation/internationalisation, install ability, configurability)

h. Describe how the Contractor enforces the use of standardised style guides for programming and technical documentation across multiple development teams and , if applicable, at multiple sites. It shall describe how the Contractor enforces the use of standards by automated tools, the capabilities of these tools and the extent to which they enforce these standards.

i. Identification of the Contractor's single point-of-contact as the standards distributor.

8.1.4.2.3. Reusable software products. This paragraph shall be divided into the following subparagraphs.

8.1.4.2.3.1. Incorporating reusable software products. This paragraph shall describe the approach to be followed for identifying, evaluating, and incorporating reusable software products, including the scope of the search for such products and the criteria to be used for their evaluation. The tailoring of software development activities with regards to reuse shall be described. It shall cover all requirements in SOW paragraphs 3.3.3.1 and shall be based on MIL-STD-498 App. B, section 4. Candidate or selected reusable software products known at the time this plan is prepared or updated shall be identified and described, together with benefits, drawbacks, and restrictions, as applicable, associated with their use.

8.1.4.2.3.2. Acquisition of reusable software products. This paragraph shall describe a plan for obtaining the reusable software products (i.e. candidate or selected reusable software products known at the time this plan is prepared or updated), dates needed, and availability of each product.

8.1.4.2.3.3. Developing reusable software products. This paragraph shall describe the approach to be followed for identifying, evaluating, and reporting opportunities for developing reusable software products. It shall cover all requirements in MIL-STD-498 paragraph 4.2.3.2 and the SOW.

8.1.4.2.4. Handling of critical requirements. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for handling requirements designated critical. The planning in each subparagraph shall cover all requirements in the corresponding paragraph of MIL-STD-498 paragraph 4.2.4.

8.1.4.2.4.1. Safety assurance

8.1.4.2.4.2. Security assurance

8.1.4.2.4.3. Privacy assurance

8.1.4.2.4.4. Assurance of other critical requirements

8.1.4.2.5. Software performance engineering (SPE). This section shall be divided into paragraphs as needed to describe the method for the evaluation of the performance of the software and the plans to perform software performance engineering activities including the following: to establish software performance requirements, to define SPE assessments, to define software performance predictions and measurements, to identify required information (e.g. typical usage scenarios, characteristics of software execution, dynamics of execution environment, resource usage) and products, the relationship of software performance to software quality factors, the relationship of SPE activities to the life cycle, and the integration of SPE activities into software development activities. Performance refers to response time or throughput as seen by the users. Performance objectives can be decomposed into terms of responsiveness, e.g. response time for an interactive task, number of work units processed in a time interval. Describe how the SPE process shall be integrated into requirements analysis, identifying satisfactory architecture, software design, implementation, integration and testing.

8.1.4.2.5.1. SPE approach. This paragraph shall describe the approach to be followed for ensuring that the software system being build will meet its performance objectives. SPE methods shall include performance requirements collection, quantitative analysis techniques for performance estimation and performance data collection, management of uncertainties/risk, identifying critical success factors and validation of performance, assessing algorithms, and assessing design and/or implementation changes with regards to performance.

8.1.4.2.5.2. Computer hardware resource utilisation.. This paragraph shall describe the approach to be followed for establishing computer hardware capacity requirements, allocating computer hardware resources among CSCIs, monitoring the utilisation of these resources for the duration of the contract, and reallocating or identifying the need for additional resources as necessary to meet contract requirements.

8.1.4.2.6. Recording rationale. This paragraph shall describe the approach to be followed for recording rationale that will be useful to the support sites for key decisions made on the project in specifying, designing, implementing, and testing the software. The rationale shall include trade-offs considered, analysis methods, and criteria used to make the decisions. The rationale shall be recorded in documents, code comments, or other media that will transition to the support sites. It shall interpret the term "key decisions" for the project and state where the rationale is to be recorded.

8.1.4.2.7. Access for Purchaser review. This paragraph shall describe the approach to be followed for providing the Purchaser or its authorised representative access to developer and subcontractor facilities including on-line access to software development environment and process control tools for review of software products and activities.

8.1.5. Plans for performing detailed software development activities. This section shall be divided into the following paragraphs. Provisions corresponding to non-required activities may be satisfied by the words "Not applicable". If different builds or different software on the project require different planning, these differences shall be noted in the paragraphs. The discussion of each activity shall include the approach (methods/procedures/tools) to be applied to: 1) the analysis or other technical tasks involved, 2) the recording of results, and 3) the preparation of associated deliverables if applicable. The discussion shall also identify applicable risks/uncertainties and plans for dealing with them. Reference may be made to 4.2.1 if applicable methods are described there.

8.1.5.1. Project planning and oversight. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for project planning and oversight. The planning in each subparagraph shall cover all requirements in the corresponding paragraph of the SOW.

8.1.5.1.1. CSCI integration test planning

8.1.5.1.2. System test planning

8.1.5.1.3. Software installation planning

8.1.5.1.4. Software transition planning

8.1.5.1.5. Following and updating plans, including the intervals for management review

8.1.5.2. Establishing a software development environment.

(1) This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for establishing, controlling, and maintaining an automated computer-based software development environment, called the Contractor's Integrated Software Engineering Environment (ISEE). It shall include the following:

a. Early identification of all COTS products and associated licensing agreements

b. Unified controls for management of common models, reuse components, code and documentation

c. Identification and use of a standard set of support tools (e.g. compiler, code counter, document generator) across development teams in multiple locations, if applicable

d. Strict version control of all support tools throughout development to ensure all delivered software and firmware is compiled or assembled under the base lined version

e. Configuration management tools capability to support rapid turnaround during integration and test.

8.1.5.2.1. Reusable Software Component System

8.1.5.2.2. Software development library

8.1.5.2.3. Software development files

8.1.5.2.4. Non-deliverable software

8.1.5.2.5. Software quality measuring tools

8.1.5.2.6. Software test environment

8.1.5.2.7. Migration planning. This paragraph shall describe any differences in tools between the Contractor's ISEE and the support site's ISEE and plans to ensure that tool differences will not adversely impact the supportability of the software. The plans shall also address how data from the Contractor's ISEE will migrate into the support site's ISEE. The plans shall also address how the Contractor's ISEE will evolve into the support site's ISEE, if applicable,. and shall include the updating and refining of the Contractor's ISEE to meet all requirements of the support site.

8.1.5.3. System requirements analysis. This paragraph shall describe the participation of software engineering in system requirements analysis.

8.1.5.4. System design. This paragraph shall be divided into the following subparagraphs to describe the participation of software engineering in system design.

8.1.5.4.1. System-wide design decisions

8.1.5.4.2. System architectural design.

8.1.5.5. Software requirements analysis. This paragraph shall describe the approach to be followed for software requirements analysis.

8.1.5.6. Software architecture and design. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for software architecture definition and design.

8.1.5.6.1. Software architecture. This paragraph shall contain the plan for defining the software architecture including the development of the logical view, the process view, the development view, the physical view, and the key scenarios. It shall describe the iterations and sequence of software architecture tasks. It shall also describe how the performance shall be validated by rapidly building a skeleton prototype to validate both the critical performance factors and the scalability by test tools/scenarios.

8.1.5.6.2. CSCI-wide design decisions.

(1) This paragraph shall contain the plan for defining the CSCI-wide design. The plan shall include the following:

a. Definition of a standards-based architecture

b. Derivation of commonalities that shall be represented in generic software architectures.

8.1.5.6.3. CSCI architectural design.

(1) This paragraph shall contain the plan for partitioning the software into components, determination of data flows, control flows, rules for integration (involving interconnection layers, standards, and protocols), and the allocation of software to hardware. Partitioning shall also reflect the different maintenance responsibilities. It shall contain a plan for establishing memory and timing budgets, scheduling and priority rules to ensure that the required performance is achieved. The plan shall include the following:

a. Reflection of higher-level concepts and abstractions

b. Reflection of technical certainties (due to specified requirements or constraints) and flexibility with regards to variants, such as performance, cost, and specific hardware selection

c. Standardisation of data interfaces, their implementation, access and communication.

8.1.5.6.4. CSCI detailed design. This paragraph shall contain the plan for defining the CSCI detailed design.

8.1.5.7. Software implementation. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for coding and unit testing. The approach shall describe the translation of the detailed design into procedural representation of the software, data structures and database interfaces, human-machine interface, and interfaces with other system software and hardware. The planning in each subparagraph shall cover all requirements in the SOW and paragraphs 5.7 of MIL-STD-498.

8.1.5.7.1. Coding

8.1.5.7.2. Preparing for unit testing

8.1.5.7.3. Performing unit testing

8.1.5.7.4. Revision and retesting

8.1.5.7.5. Analysing and recording unit test results

8.1.5.8. Unit integration and testing. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for unit integration and testing. The planning in each subparagraph shall cover all requirements in paragraph 5.8 of MIL-STD-498.

8.1.5.8.1. Preparing for unit integration and testing

8.1.5.8.2. Performing unit integration and testing

8.1.5.8.3. Revision and retesting

8.1.5.8.4. Analysing and recording unit integration and test results

8.1.5.9. CSCI qualification testing. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for CSCI qualification testing. The planning in each subparagraph shall cover all requirements in paragraph 5.9 of MIL-STD-498.

8.1.5.9.1. Independence in CSCI qualification testing

8.1.5.9.2. Testing on the target computer system

8.1.5.9.3. Preparing for CSCI qualification testing

8.1.5.9.4. Dry run of CSCI qualification testing

8.1.5.9.5. Performing CSCI qualification testing

8.1.5.9.6. Revision and retesting

8.1.5.9.7. Analysing and recording CSCI qualification test results

8.1.5.10. CSCI/HWCI integration and testing. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for participating in CSCI/HWCI integration and testing. The planning in each subparagraph shall cover all requirements in paragraph 5.10 of MIL-STD-498.

8.1.5.10.1. Preparing for CSCI/HWCI integration testing

8.1.5.10.2. Performing CSCI/HWCI integration and testing

8.1.5.10.3. Revision and testing

8.1.5.10.4. Analysing and recording CSCI/HWCI integration and test results

8.1.5.11. System testing. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for participating in system testing. The planning in each subparagraph shall cover all requirements in paragraph 5.11 of MIL-STD-498.

8.1.5.11.1. Independence in system testing

8.1.5.11.2. Testing on the target computer system

8.1.5.11.3. Preparing for system testing

8.1.5.11.4. Dry run of system testing

8.1.5.11.5. Performing system testing

8.1.5.11.6. Revision and retesting

8.1.5.11.7. Analysing and recording system test results

8.1.5.12. Preparing for software use. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for preparing for software use.

8.1.5.12.1. Preparing the executable software

8.1.5.12.2. Preparing version descriptions for user sites

8.1.5.12.3. Preparing user manuals

8.1.5.12.4. Installation at user sites

8.1.5.13. Preparing for software transition. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for preparing for software transition.

8.1.5.13.1. Preparing the executable software

8.1.5.13.2. Preparing source files

8.1.5.13.3. Preparing version descriptions for the support site

8.1.5.13.4. Preparing the "as built" CSCI design and other software support information

8.1.5.13.5. Updating the system design description

8.1.5.13.6. Preparing support manuals

8.1.5.13.7. Transition to the designated support site

8.1.5.14. Software configuration management (SCM). This section shall be divided into paragraphs as needed to describe (direct or by reference to the Configuration Management Plan) the software configuration management approach. This section shall portray the configuration management view of the software development process and its products, i.e. it shall summarise the software development process defined in detail in SDP, section 4.1 to highlight the activities important to software configuration management. It shall describe the software configuration management process and its tasks, the relationship of software configuration management to configuration management and higher plans (e.g., CMP, QAP, SEMP, PMP), the integration of management and technical controls of the SCM process. It shall identify the role of all project personnel involved in these tasks. This section shall include the following paragraphs:

8.1.5.14.1. Software identification. This paragraph shall be divided into the following subparagraphs to describe the software identification approach.

8.1.5.14.1.1. Definition of software categories

8.1.5.14.1.2. Software identification at CSCI level

8.1.5.14.1.3. Software identification at file level

8.1.5.14.1.3.1. Source file identification

8.1.5.14.1.3.2. Object file identification

8.1.5.14.1.3.3. Executable file identification

8.1.5.14.1.3.3.1. Patch identification

8.1.5.14.1.3.3.2. Image file identification (for firmware only)

8.1.5.14.1.4. File identification schemes

8.1.5.14.1.5. File identification responsibilities

8.1.5.14.1.6. Electronic Media Identification

8.1.5.14.2. Configuration control of software. This paragraph shall be divided into the following subparagraphs to describe the software configuration control approach.

8.1.5.14.2.1. Tailoring the application of configuration control to each category of software

8.1.5.14.2.2. Implementing a configuration management library as a repository for controlled software

8.1.5.14.2.3. Identification and use of a standards-checking tool as an initial screen for software to be entered into the configuration management library

8.1.5.14.3. Configuration status accounting (CSA) This paragraph shall be divided into the following subparagraphs to describe the software configuration status accounting approach.

8.1.5.14.3.1. Identification of reporting requirements

8.1.5.14.3.2. Implementation of CSA database. This paragraph shall describe the implementation of a configuration status accounting database as part of the configuration management environment; identify selection and integration of suitable COTS products, their interfaces, identify augmentation software to be developed, if applicable, and identify Purchaser access.

8.1.5.14.3.3. Populate/update the configuration database

8.1.5.14.4. Configuration management metrics. This paragraph shall describe the metrics definition, measurement and reporting.

8.1.5.14.5. Packaging, storage, handling, and delivery of software

8.1.5.15. Software product evaluation. This paragraph shall be divided into the following sub-paragraphs to describe the approach to be followed for software product evaluation. The planning in each subparagraph shall cover all requirements in paragraph 5.15 of MIL-STD-498.

8.1.5.15.1. In-process and final software product evaluations

8.1.5.15.2. Software product evaluation records, including items to be recorded

8.1.5.15.3. Independence in software product evaluation

8.1.5.16. Software quality assurance. This section shall reference the software quality assurance approach and tasks described in the Quality Assurance Plan. It shall be divided into subparagraphs as needed to describe the active (rather than passive) software quality assurance program including constructive quality assurance methods, analytical SQA methods for static and/or dynamic analysis, and methods for error correction, SQA tool support requirements definition, compliance monitoring, software quality status metrics.

8.1.5.17. Corrective action. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for corrective action. The planning in each subparagraph shall cover all requirements in paragraph 5.17 of MIL-STD-498.

8.1.5.17.1. Problem/change reports, including items to be recorded (candidate items include project name, originator, problem number, problem name, software element or document affected, origination date, category and priority, description, analyst assigned to the problem, date assigned, date completed, analysis time, recommended solution, impacts, problem status, approval of solution, follow-up actions, corrector, correction date, version where corrected, correction time, description of solution implemented)

8.1.5.17.2. Corrective action system

8.1.5.18. Technical reviews. This paragraph shall be divided into the following subparagraphs to describe how the proposed development methodology supports proposed reviews, the approach to be followed for technical reviews including the proposed set of reviews and their methods, and identify the required experience level, training and skills the Contractor's staff must have to make the reviews effective. The planning shall cover all requirements in paragraph 3.7 of the SOW. The reviews shall focus on evolving software products and final software products, rather than materials generated especially for the review. The reviews shall use the criteria in MIL-STD-498, App. D

8.1.5.18.1. System-level technical reviews

8.1.5.18.2. Build-level technical reviews

8.1.5.18.3. Software Usability Reviews.

(1) These reviews are held to resolve open issues regarding one or more of the following:

a. The readiness of the software for installation at operational sites;

b. The user and operator manuals;

c. The software version descriptions;

d. The status of installation preparations and activities.

8.1.5.18.4. Software Supportability Reviews.

(1) These reviews are held to resolve open issues regarding one or more of the following:

a. The readiness of the software for transition to support sites;

b. The software product specifications;

c. The software support manuals;

d. The software version descriptions;

e. The status of transition preparations and activities.

8.1.5.19. Other software development activities. This paragraph shall be divided into subparagraphs as needed to describe the approach to be followed for performing any other software development activities.

8.1.5.19.1. Risk management, including known risks and corresponding strategies

8.1.5.19.2. Software management indicators, including indicators to be used

8.1.5.19.3. Security and privacy

8.1.5.19.4. Subcontractor management

8.1.5.19.5. Interface with software independent verification and validation (IV&V) agents, if applicable

8.1.5.19.6. Co-ordination with associate developers

8.1.5.19.7. Improvement of project processes

8.1.5.19.8. Identification of areas for prototyping and demonstrations

8.1.5.19.9. Plans for training. This paragraph shall describe the plans to train development team staff and other software professionals in the methodology, methods, standards, (design and programming) languages

and style guides, and tools of the software engineering environment. This paragraph shall be split into the following subparagraphs:

8.1.5.19.9.1. Plans for training Contractor personnel.

8.1.5.19.9.2. Plans for training Purchaser personnel.

8.1.6. Schedules and activity network.

(1) This section shall present an integrated network-based schedule to include program milestones and definitions, logical network-based detailed schedules with associated higher order intermediate and summary level schedules consistent with higher level schedules. The key elements of the integrated network are identical to the ones defined in the SES. This section shall present:

a. Schedule(s) identifying the activities in each build and showing initiation of each activity, availability of draft and final deliverables and other milestones, and completion of each activity

b. An activity network, depicting sequential relationships and dependencies among activities and identifying those activities that impose the greatest time restrictions on the project.

(2) In addition the diagram(s) shall order the Events/Activities to show the logical interrelationship of the activities in a networked fashion. The diagram(s) shall be generated by a computer application capable of highlighting the critical path. For ease of handling developer-internal scheduling information (e.g. low level details) shall be separated from project data that is subject to Purchaser approval.

8.1.6.1. Software Engineering Master Schedule. A graphical display of all top level program activities/events and key milestones, from contract award to the completion of the contract, which depict major work activities in an integrated fashion at the summary level of the WBS.

8.1.6.2. Software Engineering Detailed Schedule

8.1.6.2.1. Intermediate schedules. A graphical display of top level program activities and key milestones, which depict major work activities in a WBS element.

8.1.6.2.2. Detailed schedules. A graphical display of detailed activities and milestones which depict work activities in a particular WBS element.

8.1.6.3. Periodic analysis. A brief summary which identifies progress to date, variances to the planned schedule, causes for the variance, potential impacts and recommended corrective action to avoid schedule delays. For each program milestone planned, forecasted and actual completion dates shall be included. The analysis shall also identify potential problems and continuing assessment of the network critical path.

8.1.6.4. Relationship of cost and technical performance risk to the schedule. The schedule shall include a description of the approach that will be taken to limit the schedule risks identified as a result of the contractor's risk assessment. Risk shall be defined considering impact on cost and technical performance and assessing the probability of schedule change.

8.1.6.5. Estimation model and tool description. Describe the estimation model(s) and tool(s) characteristics used for software development schedule and activity network. State reference data used for calibration and assumptions made together with rationale.

8.1.6.6. Linkage to (business) process model and its Workflow implementation. Describe the linkage, i.e. forms of integration of the computer-aided schedules and activity network tool(s) to the Workflow implementation of the business) process model (paragraph 4.1.1) including capabilities of controls and automated task, event, and status presentation.

8.1.7. Project organisation and resources. This section shall be divided into the following paragraphs to describe the project organisation and resources to be applied in each build.

8.1.7.1. Project organisation. This paragraph shall describe the organisational structure to be used on the project, including the organisations involved, their relationships to one another, and the authority and responsibility of each organisation for carrying out required activities.

8.1.7.1.1. Software Architecture Team. This section shall describe the charter (responsibilities, authority), the skills composition (e.g. experience with regards to domain and software design, leadership, communication), the organisation within the software development team, its size and its evolution, (e.g.

transition from the initial architecture team to a permanent core architecture team and the software development technical teams) and transition criteria.

8.1.7.1.2. Software Configuration Management Resources. This paragraph shall describe (direct or by reference to the Configuration Management Plan) the charter (responsibilities, authority), the skills composition (e.g. experience with regards to software development, configuration management, software configuration identification, software configuration control, configuration status accounting, configuration management metrics), the organisation, its size, its build-up and transition, if applicable.

8.1.7.1.3. Software Quality Assurance Resources. This paragraph shall describe (direct or by reference to the Quality Assurance Plan) the charter (responsibilities, authority), the skills composition (e.g. experience with regards to software development, quality engineering, quality assurance, software quality assurance), the organisation, its size, its build-up and transition, if applicable.

8.1.7.2. Project resources.

(1) This paragraph shall describe the resources to be applied to the project. It shall include, as applicable:

a. Personnel resources, including:

i. The estimated staff-loading for the project (number of personnel over time)

ii. The breakdown of the staff-loading numbers by responsibility (e.g. management, software engineering (analyst, architect, designer, programmer), software testing, software configuration management, software product evaluation, software quality assurance)

iii. A breakdown of the skill levels, geographic locations, and security clearances of personnel performing each responsibility

b. Overview of developer facilities to be used, including geographic locations in which the work will be performed, facilities to be used, and secure areas and other features of the facilities as applicable to the contracted effort.

c. Purchaser-furnished equipment, software, services, documentation, data, and facilities required for the contracted effort. A schedule detailing when these items will be needed shall also be included.

d. Other required resources, including a plan for obtaining the resources, dates needed, and availability of each resource item

8.1.8. Notes. This section shall contain any general information that aids in understanding this document (e.g. background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

8.1.9. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendices may be bound as separate documents for ease in handling. Appendices shall be lettered alphabetically (A, B, etc.).

42. SYSTEMS ENGINEERING MANAGEMENT PLAN (NCIA-DI-SWSEMP)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title	2. Identification Number	Based on
SYSTEMS ENGINEERING MANAGEMENT PLAN	NCIA-DI-SWSEMP	US-DOD-DI-MGMT-81024A
3. Description / Purpose 3.1. The Systems Engineering Management Plan (SEMP) defines the contractor's plan for the conduct and management of a fully integrated technical effort. 3.2. The SEMP will be used by the Contractor to manage and integrate the full spectrum of technical abilities. 3.3. The SEMP will be used by the Purchaser to evaluate the contractor's technical approach, to make technical risk assessments, and to gauge progress.		
4. Not Used	5. Office of Primary Responsibility	
6. Application / Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Content requirements:

8.1.1. Scope. This section shall be divided into the following paragraphs.

8.1.1.1. Identification. This paragraph shall contain a full identification of the system and software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

8.1.1.2. System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarise the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

8.1.1.3. Document overview. This paragraph shall summarise the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

8.1.1.4. Relationship to other plans. This paragraph shall describe the relationship, if any, of the SEMP to other project management plans.

8.1.2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Purchaser stocking activities.

8.1.3. Systems engineering process.

(1) This section of the SEMP shall contain a description of the contractor's systems engineering process activities to be accomplished during the contract phase. The process shall include workshops, prototyping, demonstrations and similar techniques that encourage continuous Purchaser/user involvement in the incremental development of the system. The process shall also link the operational requirement views (e.g. enterprise, process, location and organisational model views) to the technical

system design views (e.g. hardware, software, interface technology model views) by an architecture. The evolving system design shall preserve and convey, at all levels and as far as possible, an external (or user) view. This section shall address the iterative nature of the process application and other process implementation features including:

a. Organisational responsibilities and authority for systems engineering pursuits and tasks, including control of subcontracted engineering

b. Tasks to satisfy each of the accomplishment criteria identified in the contractor's Systems Engineering Master Schedule (SEMS) and their relationship to the contractor's Systems Engineering Detailed Schedule (SEDS); and

c. Narratives, supplemented as necessary by graphical presentations, detailing the contractor's plans, processes, and procedures for the execution of the systems engineering effort

8.1.3.1. Systems engineering process planning.

(1) This section shall address key program technical objectives, products, and expected results from the process, needed process inputs, and contract work breakdown structure development. The planning shall include the planning for layout of builds and their synchronisation.

a. Major products and results of the process. This section shall contain a description of major products and results both for the Purchaser and for internal use within the contractor program as a result of the systems engineering process activities.

i. Decision Data Base. This section shall contain a description of the development, implementation, life-cycle accessibility, and life-cycle maintenance of the decision data base, including a description of how traceability of the information will be accomplished.

ii. Specifications and Baselines. This section shall contain the plan to generate specifications and configuration baselines, measures of completeness, verifiability, and traceability as well as how and when they will be controlled

b. Process inputs. This section shall contain an explanation of the depth of information detail needed to be able to accomplish the activities of the systems engineering process, how needed information will be acquired when not available in Purchaser documents provided, and how conflicts in information provided will be resolved.

c. Technical objectives. This section shall contain a description of the technical objectives and their relationship to cost, schedule, performance and risk

d. Contract Work Breakdown Structure (CWBS). This section shall contain a description of the development and implementation of the CWBS including the relationship between the specification tree and of other contractual tasks required to form a complete CWBS. The methods of time phasing of work breakdown structures, development and control of work packages, development of planning packages and their conversion to work packages, size of work packages, resource use traceability to work breakdown structure and organisational structure, and integration to scheduling and critical path identification shall be included. (If this information is required elsewhere by the contract, do not duplicate reporting but provide a cross reference to the specific items requested).

e. Training. This section shall contain a description of the method by which both internal and external training for contractor and Purchaser personnel is done. The plan may include analysis results of performance or behaviour deficiencies or shortfalls, required training to remedy, and schedules to achieve required proficiencies.

f. Standards and procedures. This section shall contain a description of standardisation documents and procedures that the program will follow and implementation of standardisation tasking into the pertinent sections of the systems engineering process

g. Resource allocation. This section shall contain a description of the technical basis and rationale for resource allocation to program technical tasks. This section may include resource requirements identification, procedures for resource control, and reallocation procedures. (If this information is required elsewhere by the contract, do not duplicate reporting but provide a cross reference to the specific items requested).

h. Constraints. This section shall contain a description of major constraints on the program. Constraints are limitations or restrictions a program will observe and include areas of funding, personnel, facilities, manufacturing capability, critical resources, or other constraining resource.

j. Work authorisation. This section shall contain a description of the method by which work packages are initiated (opened) and the criteria for their close-out as well as the method by which changes to the content of work packages will be authorised. (If this information is required elsewhere by the contract, do not duplicate reporting but provide a cross reference to the specific items requested).

k. Verification Planning. This section shall contain a description of the verification planning for all requirements. This may include identification and configuration control of verification tools

l. Subcontractor technical effort. This section shall contain a description of the level of subcontractor participation in the technical effort as well as of the systems engineering role in vendor and supplier selection and control.

8.1.3.2. Requirements analysis.

(1) This section shall contain a description of the methods, procedures, and tools for analysis of missions and environments; identification of requirements for development, manufacturing, verification, deployment, operations, support, training, and determination of design constraint requirements. This section shall also document the approach and methods used to define the performance and functional requirements for the following areas. (Note: Some areas may impact requirements analysis only after synthesis efforts identify solution alternatives. As such, some of the descriptive information may be more appropriately covered under other systems engineering process elements).

a. Reliability

b. Maintainability

c. Survivability including Nuclear, Biological and Chemical

d. Electromagnetic Compatibility, Radio Frequency Management, and Electrostatic Discharge

e. Human Engineering and Human Systems Integration

f. Safety and Health Hazards

g. System Security

h. Producibility

j. Supportability and Integrated Logistics Support

k. Test and Evaluation

l. Testability and Integrated Diagnostics

m. Transportability

n. Infrastructure Support

o. Other Areas of System Functionality. This section shall address any other areas bearing on the determination of performance and functional requirements for the system under contract.

8.1.3.3. Functional analysis/allocation. This section shall contain a description of the approach, methods, procedures, and tools to perform functional analysis/allocation. A discussion shall be included on integrating factor dependent approaches and methods for the tasks identified in 3.2a through 3.2n into functional analysis/allocation.

8.1.3.4. Synthesis.

(1) This section shall contain a description of the approach, methods, procedures and tools to perform synthesis. A discussion shall be included on integrating into synthesis:

a. Factor-dependent approaches and methods for tasks identified in 3.2a through 3.2n; and,

b. The use of leveraged options in system solutions

i. Non-developmental items;

ii. Open systems architecture

iii. Re-use

8.1.3.5. Systems analysis and control.

(1) This section shall address the approach, methods, procedures, and tools that the contractor plans to utilise for systems analysis and control. This shall include the integration of factor-dependent approaches and methods for the items identified in 3.2a through 3.2n into systems analysis and control. Further, this section shall contain the plans to integrate into systems analysis and control the pervasive development considerations of:

a. Computer resources risk management

b. Use of simulations (e.g., integration laboratories, mathematical models, virtual reality, etc.)

c. Use of prototyping (including by simulation) to assist in identifying and reducing risks

d. Materials, processes, and parts control; and

e. Digital data

8.1.3.5.1. Systems analysis.

(1) This section shall contain a description of the specific systems analysis efforts needed including methods, procedures, and tools necessary for their conduct.

a. Trade studies. This section shall include a description of planned trade studies and necessary source data.

b. System/cost effectiveness analyses. This section shall include a description of the system/cost effectiveness analysis effort and its role as an integral part of the systems engineering process. This section shall include a description of the implementation of system/cost effectiveness analyses to support the development of life-cycle balanced products and processes and to support risk management activities. This section shall contain a description of the Measures of Effectiveness (MOE), how the MOEs interrelate (such as a MOE hierarchy), and criteria for the selection of additional MOEs to support the evolving definition and verification of the system. This section shall contain a description of the overall approach for system/cost effectiveness analysis as well as manufacturing analysis, verification analysis, deployment analysis, operational analysis, supportability analysis, training analysis, disposal analysis, environmental analysis and life cycle cost analysis. A description shall be included on how analyses will be partitioned into the various areas, if they cannot be conducted integrally, and how analytic results will be integrated.

c. Risk management. This section shall include a description of the risk management program to cover:

i. Approach and criteria for risk identification, prioritization, sensitivity assessment, handling, and risk impact integration into decision processes

ii. The risks associated with the developmental test and evaluation requirements

iii. Plans to handle technical risk (e.g., prototyping, technology and integration verification, back-up development)

iv. Risk control and monitoring measures including special verifications, technical performance measurement, and critical milestones; and

v. Description of the method for relating Technical Performance Measurement (TPM), Systems Engineering Master Schedule (SEMS), and Systems Engineering Detailed Schedule (SEDS) to cost and schedule performance measurement and the relationship to the Contract Work Breakdown Structure (CWBS)

8.1.3.5.2. Control.

(1) This section of the SEMP shall contain a description of the specific control mechanisms needed, including methods, procedures, and tools

a. Configuration Management (CM). This section shall include a description of the approach planned to establish and maintain configuration control of identified system products and processes (when a CM plan is separately required, reference to appropriate sections of the plan will suffice)

b. Interface management. This section shall include a description of the approach planned to establish and maintain interface control within contractual responsibility and support activities to ensure that external interfaces are managed and controlled

c. Contract data management. This section shall include a description of the approach planned to establish and maintain a contract data management system. This section shall contain a description of how and which technical documentation will be controlled and the method of documentation of program engineering and technical information.

d. Systems Engineering Schedule (SES). This section shall include a description of the analysis used to derive the Systems Engineering Master Schedule (SEMS) and the supporting Systems Engineering Detailed Schedule (SEDS) and their structure.

e. Technical Performance Measurement (TPM). This section shall include a description of the approach planned for establishing, maintaining and reporting results of TPM which are responsive to requirements, technical parameters identified by the Purchaser, and requirements in the SEMS. This section shall include the following:

i. TPM update frequencies, level of tracking depth, and response time to generate recovery plans and planned profile revisions

ii. Technical parameters selected for tracking including related risks

iii. Depiction of relationships between the selected critical parameter and those lower-level parameters that must be measured to determine the critical parameter achievement value with each parameter correlated to their Contract Work Breakdown Structure (CWBS) element

iv. Conditions of measurement (type of test, simulation, analysis, demonstration, or estimate; environment; and constraints on measurement)

f. Technical reviews. This section shall include a description of the approach planned to establish and conduct technical reviews. This shall include how compliance with contract performance and design requirements will be determined; how discrepancies identified as not meeting contractual requirements will be handled; and how system products and processes assessed to have a moderate to high risk of compliance shall be addressed in order to comply with the contract, SEMS, and success criteria prior to conducting a review

g. Supplier control. This section shall include a description of the technical management of suppliers and subcontractors including integration of their technical efforts and data into the overall systems engineering effort, and the integration of subcontractor data into the decision data base.

h. Requirements traceability. This section shall include a description of the approach planned to establish and maintain requirements traceability between systems engineering process activities, work breakdown structures, technical data management system and correlation, as pertinent, with the SEMS and the SEDS. The traceability of requirements through the contract data management system shall be described.

8.1.3.6. COTS technologies use. This section shall contain a discussion of the risk associated with the use of COTS (hardware, software, and software tools) in this project. It shall contain the criteria applied/to be applied to COTS selection, strategies and criteria for assessing COTS technologies advancements and the conditions under which COTS upgrades will be incorporated into the system.

8.1.3.6.1. COTS software incorporation.

(1) This paragraph shall describe the strategy for the incorporation of COTS software including necessary upgrades and/or replacements to keep it current. It shall address selection, re-assessment and ordering decisions, activities and periods. It shall address upward incompatibilities assessment, schedule impacts associated with migration/porting, time and resources reserved for modifications and resolution of COTS interface/performance problems. It shall contain the criteria applied/to be applied to COTS software selection and re-assessment. The criteria shall include:

a. Ability to provide required capabilities and meet required constraints

b. Ability to provide required safety, security, and privacy

c. Ability to provide required internationalisation and required language versions

d. Ability to provide required human machine interface

f. Interoperability/compatibility with other system and system-external elements

g. Reliability/Maturity, as evidenced by established track record

h. Corporate experience with the product; product history and reference implementations

j. Supportability, including:

i. COTS product position (e.g. position in vendor's product line/families of product, potential growth/reserves/extensions, product cycle, vendor's future plans and scheduled upgrades/replacements, technology trends, upward incompatibilities, migration path)

ii. Likelihood the COTS product will need to be changed (e.g. COTS product refreshment)

iii. Feasibility of accomplishing that change

iv. Associated documentation meets VOICE LOOP System documentation requirements

v. Licensing agreement meets VOICE LOOP System data rights requirement

vi. Warranties available, vendor support

k. License or other fee applicable to each copy

l. Software portability considerations

m. Testability

8.1.3.6.2. COTS hardware incorporation.

(1) This paragraph shall describe the strategy for the incorporation of COTS hardware including necessary upgrades and/or replacements to keep it current. It shall address selection, re-assessment and ordering decisions, activities and periods. If there are differences with regards to hardware, this paragraph shall identify and define those. It shall contain the criteria applied/to be applied to COTS hardware selection and re-assessment. The criteria shall include:

a. Ability to provide required capabilities and meet required constraints

b. Ability to provide required safety, security, and privacy

c. N/A

d. Ability to provide required human factors

f. Interoperability/compatibility with other system and system-external elements

g. Reliability/Maturity, as evidenced by established track record

h. Corporate experience with the product; product history and reference implementations

j. Supportability, including:

i. COTS product position (e.g. position in vendor's product line/families of product, potential growth/reserves/extensions, product cycle, vendor's future plans and scheduled upgrades/replacements, technology trends, upward incompatibilities, migration path)

ii. Likelihood the COTS product will need to be changed (e.g. COTS product refreshment)

iii. Feasibility of accomplishing that change

iv. Associated documentation meets VOICE LOOP System documentation requirements

v. Licensing agreement meets VOICE LOOP System data rights requirement

vi. Warranties available, vendor support

k. Costs or other fee applicable to each item

l. Software portability considerations

m. Testability

8.1.3.6.3. COTS software tools. This paragraph shall contain a description of the risk associated with the use of COTS software tools (e.g. limited life-cycle vendor support, upward incompatibilities, and schedule impacts associated with porting tools), time and resources earmarked/allocated/reserved for tool modifications and resolution of COTS interface/performance problems.

8.1.3.7. Integration of the Systems Engineering effort.

(1) This section of the SEMP shall contain a description of:

a. How the various inputs will be integrated into a co-ordinated systems engineering effort that meets cost, schedule, and performance objectives, including how the technical effort of subcontractors and vendors is integrated

b. How the contractor will organisationally support the systems engineering effort, including how multidisciplinary teamwork will be achieved

c. Major responsibilities and authority in conducting systems engineering efforts, to include present and planned program technical staffing

d. Planned personnel needs by discipline and level of expertise, and human resource loading; and

e. Use of methods to support design integration, (e.g., integrated computer-aided tool sets, management information systems).

8.1.3.8. Implementation tasks.

(1) This section shall contain a description of required implementation tasks including:

a. Technology verifications

b. Process proofing

c. Manufacturing of engineering test articles

d. Development test and evaluation

e. Generation and re-use of software for system end-items

f. Sustaining engineering and problem solution support; and

g. Other systems engineering implementation tasks

8.1.3.9. Additional systems engineering activities. This section of the SEMP shall contain a description of other areas not specifically included in previous sections but that are essential for proper planning and conduct of the systems engineering effort

8.1.3.9.1. Long-lead items. This section shall contain a description of the process by which long-lead items that affect the critical path of the program are defined/determined.

8.1.3.9.2. Engineering Environment.

(1) This section shall contain a description of systems engineering environment(s) and tools which will be used on the program as well as the reliance on them and control of them. This section shall be divided into paragraphs to include the following:

a. Analysis tools

b. Synthesis tools

c. Control tools

d. Reference tools

e. Simulation tools

f. Laboratory and other facility tools

8.1.3.9.2.1. Access for Purchaser review. This paragraph shall describe the approach to be followed for providing the Purchaser or its authorised representative access to Contractor facilities including on-line access to engineering environments and tools for review of software products and activities.

8.1.3.9.3. System integration. This section shall contain a description of the approach for the integration and assembly of the system with emphasis on risk management and continuing verification of all external and internal interfaces (physical, functional and logical).

8.1.3.9.4. EMI engineering. This section shall contain a description of the EMI engineering management. It shall include the EMI Control Procedures that define the specific organisational responsibilities, lines of authority and control, and the implementation planning, including milestones and schedules. In addition, the detailed EMI requirements to be imposed on subcontractors and a definition of responsibility for associated contractor equipment, Purchaser Furnished Equipment, and subcontractor vendor items shall be indicated. A description of the equipment or subsystem, its characteristics where known, and intended installation or platform shall also be indicated. Plans and procedures for identifying and resolving potential EMI problems shall be discussed. Also, the methods for testing and implementing solutions shall be discussed. A point of contact for EMI technical issues shall be identified.

8.1.3.9.5. System Security Engineering Plan. This section shall describe the security engineering approach, each security engineering activity with resulting product(s), their interrelationship, the integration and co-ordination of information system security (including COMPUSEC and COMSEC) engineering tasks and how these will be integrated with other systems engineering tasks, software engineering tasks and technical reviews through all phases of the project. It shall describe the use of and the traceability to the Community Security Requirement Statement (CSRS) and the Site specific System Specific Security Requirement Statements (SSRS) as the overall security policy and security requirement statement. It shall identify the security engineering team, its resources and relationship within the project organisation.

8.1.3.9.6. Data Engineering. This section shall describe the data engineering approach, each data engineering activity with resulting product(s), their interrelationship, the integration and co-ordination of data engineering tasks and how these will be integrated with other systems engineering tasks, software engineering tasks and technical reviews through all phases of the project. The data engineering approach shall include a description of the iterative process of top-down and bottom-up methods. It shall identify the data engineering team, its resources and relationship within the project organisation.

8.1.3.9.6.1. Data Engineering Planning. This paragraph shall describe planning the effort and defining the scope of data engineering from requirements definition, design and design validation, implementation, to testing and maintenance. It shall describe the selection of supporting CASE tools and Data dictionaries, including early consideration of operational database population and legacy data conversion requirements, data modelling, prototyping, performance monitoring, cost/performance trade-off analysis, DBMS evaluation and selection, previewing data base administration policies and procedures. It shall describe the establishment and maintenance of separate operational data bases for implementation, testing and operations, and the degree of controls applied to each during the life cycle.

8.1.3.9.6.2. Requirements definition. This section shall be divided into paragraphs as needed to describe the data base requirements definition approach including corporate data modelling, high-level logical data design, and critical requirements definition (e.g. security, restart, recovery) for the entire operational data base.

8.1.3.9.6.3. Design. This section shall be divided into paragraphs as needed to describe the data distribution strategy analysis and selection, DBMS selection criteria, evaluation of candidate DBMS products (e.g. by modelling, prototyping and benchmarking), selection of DBMS and related functional products (such as security interface product), identification of custom data management software to be developed (if applicable), and allocation of data resources to system components, validation of the operational data base design including an architectural prototype demonstration as part of the Software Architecture Review, and

identification of population with converted legacy data including identification of (1) those portions of the operational data base which will be populated with converted data from existing Purchaser Furnished data bases or files and (2) software tools to be used for conversion, establishment of criteria for successful conversion, and previewing data base administration policies and procedures to ensure number and skill level of support personnel stay within constraints specified.

8.1.3.9.6.4. Implementation. This section shall be divided into paragraphs as needed to describe (1) the structural database design , including detailed logical data design and data base performance analysis and monitoring; (2) the physical data base design; and (3) the incremental implementation, and sizes monitoring of the operational data base(s).

8.1.3.9.6.5. Testing. This section shall be divided into paragraphs as needed to describe the operational data base testing including application interface testing, data base performance testing, verification that all data base components (e.g. data base, DBMS, other data management and database administration software and related functional products (such as security interface product)) included in a build are ready to be integrated with other system components in that build.

8.1.3.9.6.6. Maintenance. This section shall be divided into paragraphs as needed to describe the operational data base maintenance activities to be performed by the Contractor including monitoring, tuning, organising, back-up and recovery (or re-population) and data purging.

8.1.3.9.7. Human Factors and Human Machine Interface Engineering. This section shall describe the human factors engineering (HFE) approach and human machine interface (HMI) approach, each HFE and HMI engineering activity with resulting product(s), their interrelationship, the integration and co-ordination of HFE and HMI engineering tasks and how these will be integrated with other systems engineering tasks, software engineering tasks and technical reviews through all phases of the project. It shall identify the HFE and HMI engineering team, its resources (numbers, specialised skills, and roles) and relationship within the project organisation especially the relationship between graphic designer for the visual aspects of HMI, dialogue designer, application analyst/designer/programmer, independent user interface evaluator, user interface tool builder.

8.1.3.9.7.1. HFE and HMI Engineering Planning. This paragraph shall describe planning the effort and defining the scope of HFE and HMI engineering from requirements definition, design and design validation, implementation, to testing and maintenance. It shall describe the evaluation and selection of supporting software (including user interface management system, window managers and user interface tool kits) and tools for scripting interaction objects and dialogues, modelling, prototyping, and performance monitoring. It shall include a description of the methods and tools being used (e.g. requirements elicitation, (rapid) prototyping, user interface development tools, scripting, modelling, simulation, demonstrations) and how and when the Operational User Group will be involved.

8.1.3.9.7.2. Requirements definition and design. This section shall be divided into paragraphs as needed to describe the HFE and HMI requirements definition and design including the following: definition of system interface requirements for explicit and implicit users, establishment of usage profiles (e.g. novice or first time user, knowledgeable intermittent user, expert frequent user), establishment of task profiles (e.g. relative frequency of use), definition of synthesised positions, definition of interaction styles (e.g. direct manipulation, natural language, command language, menu selection, form fill-in), user interface quality requirements (e.g. ease of use, balance of automation and human control, accuracy and handling of invalid user inputs, safety, consistency, transparency, efficiency, adaptability, expandability, internationalisation), security, privacy, reliability; definition of HMI environments, HMI facility requirements, and corresponding hardware/software (including user interface management system, window managers and user interface tool kits) selection criteria; the establishment of design guidelines; the definition of the architecture and validation by an architectural prototype demonstration as part of the Software Architecture Review, HFE and HMI evaluation, HMI demonstrations.

8.1.3.9.7.3. CI Implementation. This section shall be divided into paragraphs as needed to describe the HFE and HMI aspects of requirements definition, design, implementation and testing at the CI level. It shall include the description of the transition from design implementations of the HMI (e.g. scripts) to the generation of executable code as part of the application code.

8.1.3.9.7.4. System Integration and Testing. This section shall be divided into paragraphs as needed to describe the development of user documentation and training with regards to the HMI and the integration testing of the HMI in context of the integrated system.

8.1.3.9.7.5. System Installation and Acceptance. This section shall be divided into paragraphs as needed to describe the training of users in the HMI and the testing of the HMI in context of the acceptance.

8.1.3.9.7.6. Use and training issues. This section shall be divided into paragraphs as needed to describe the measurements of user performance, proposals for improving efficiency and quality of operations, training exercises for practising skills, certifying new users, maintaining user proficiency, and recertifying users, if applicable.

8.1.3.9.9. Other methods and controls. This section shall contain a description of any other methods and controls that the contractor or subcontractor personnel will use in the technical effort.

8.1.4. Notes. This section shall contain any general information that aids in understanding this document (e.g. background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

8.1.5. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendices may be bound as separate documents for ease in handling. Appendices shall be lettered alphabetically (A, B, etc.).

8.1.5.1. Technical Performance Measurement Appendix.

(1) This appendix is not for approval since it will contain the actual tracking data for each parameter. It shall contain the following data for each parameter to be tracked:

   a. Specification threshold, technical objective or requirement, or measure of effectiveness

   b. Time-phased planned value profile with a tolerance band (error budget). The planned value profile shall represent the expected trend of the parameter over the Configuration Item (CI) development life cycle. The boundaries of the tolerance band shall represent estimated inaccuracies at the time of the estimate, and shall indicate the region within which it is expected that the specification requirement will be achieved with allocated resources and SEMS/SEDS events and milestones

   c. The risks associated with achieving the planned value profile; and

   d. Program events significantly related to the achievement of the planned value profile (e.g. technical reviews)

43. SOFTWARE PRODUCT SPECIFICATION (NCIA-DI-SWSPSPB)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title SOFTWARE PRODUCT SPECIFICATION	2. Identification Number NCIA-DI-SWSPSPB	Based on US-DOD-DI-IPSC-81441
3. Description / Purpose 3.1. The Software Product Specification (SPS) contains or references the executable software, source files, and software support information, including "as built" design information and compilation, build, and modification procedures, for a Computer Software Configuration Item (CSCI). 3.2. The SPS is used to order the executable software and source files for a CSCI and is the primary software support document for the CSCI.		
4. Not Used	5. Office of Primary Responsibility	
6. Application / Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Content requirements:

8.1.1. Scope. This section shall be divided into the following paragraphs.

8.1.1.1. Identification. This paragraph shall contain a full identification of the system and software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

8.1.1.2. System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarise the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

8.1.1.3. Document overview. This paragraph shall summarise the purpose and contents of this plan and shall describe any security or privacy considerations associated with its use.

8.1.2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this manual. This section shall also identify the source for all documents not available through normal Purchaser stocking activities.

8.1.3. Requirements. This section shall be divided into the following paragraphs to achieve delivery of the software and to establish the requirements that another body of software must meet to be considered a valid copy of the CSCI.

8.1.3.1. Executable software. This paragraph shall provide, by reference to enclosed or otherwise provided electronic media, the executable software for the CSCI, including any batch files, command files, or other software files needed to install and operate the software on its target computer(s). In order for a body of software to be considered a valid copy of the CSCI's executable software, it must be shown to match these files exactly.

8.1.3.2. Source files. This paragraph shall provide, by reference to enclosed or otherwise provided electronic media, the source files for the CSCI, including any batch files, command files, or other files needed to regenerate the executable software for the CSCI. In order for a body of software to be considered a valid copy of the CSCI's source files, it must be shown to match these files exactly.

8.1.3.3. Packaging requirements. This paragraph shall state the requirements, if any, for packaging and marking copies of the CSCI.

Note: Software "manufacturing" consists of electronic duplication of the software itself, not recreation from design, and the validity of a "manufactured" copy is determined by comparison to the software itself, not to a design description. This section therefore establishes the software itself as the criterion that must be matched for a body of software to be considered a valid copy of the CSCI. The updated software design has been placed in Section 6 below, not as a requirement, but as information to be used to modify, enhance, or otherwise support the software. If any portion of this specification is placed under Purchaser configuration control, it should be limited to Section 3. It is the software itself that establishes the product baseline, not a description of the software's design.

8.1.4. Qualification provisions. This paragraph shall state the method(s) to be used to demonstrate that a given body of software is a valid copy of the CSCI. For example, the method for executable files might be to establish that each executable file referenced in 3.1 has an identically-named counterpart in the software in question and that each such counterpart can be shown, via bit-for-bit comparison, check-sum, or other method, to be identical to the corresponding executable file. The method for source files might be comparable, using the source files referenced in 3.2.

8.1.5. Software support information. This section shall be divided into the following paragraphs to provide information needed to support the CSCI.

8.1.5.1. "As built" software design. This paragraph shall reference information describing the design of the "as built" CSCI. The information shall be the same as that required in a Software Design Document (SDD), Interface Design Document (IDD), and Database Design Document (DBDD), as applicable. Information provided in the headers, comments and code of the source code listings may be referenced and need not be repeated in this section. If the SDD, IDD or DBDD is included in an appendix, the paragraph numbers and page numbers need not be changed.

8.1.5.2. Compilation/build procedures. This paragraph shall describe, or reference an appendix that describes, the compilation/build process to be used to create the executable files from the source files and to prepare the executable files to be loaded into firmware or other distribution media. It shall specify the compiler(s)/assembler(s) to be used, including version numbers; other hardware and software needed, including version numbers; any settings, options, or conventions to be used; and procedures for compiling/assembling, linking, and building the CSCI and the software system/subsystem containing the CSCI, including variations for different sites, configurations, versions, etc. Build procedures above the CSCI level may be presented in one SPS and referenced from the others.

8.1.5.3. Modification procedures. This paragraph shall describe procedures that must be followed to modify the CSCI. It shall include or reference information on the following, as applicable:

- support facilities, equipment, and software, and procedures for their use,
- databases/data files used by the CSCI and procedures for using and modifying them,
- design, coding and other conventions to be followed,
- compilation/build procedures if different from those above,
- integration and testing procedures to be followed.

8.1.5.4. Computer hardware resource utilisation. This paragraph shall describe the "as built" CSCI's measured utilisation of computer hardware resources (such as the processor capacity, memory capacity, input/output device capacity, auxiliary storage capacity, and communications/network equipment capacity). It shall cover all computer hardware resources included in utilisation requirements for the CSCI, in system-level resource allocations affecting the CSCI, or in the software development plan. If all utilisation data for a given computer hardware resource is presented in a single location, such as in one SPS, this paragraph may reference that source. Included for each computer hardware resource shall be:

- the CSCI requirements or system-level resource allocations being satisfied. (Alternatively, the traceability to CSCI requirements may be provided in 6.c.),
- the assumptions and conditions on which the utilisation data are based (for example, typical usage, worst-case usage, assumption of certain events),

- any special considerations affecting the utilisation (such as use of virtual memory, overlays, or multiprocessors or the impacts of operating system overhead, library software, or other implementation overhead),
- the units of measure used (such as percentage of processor capacity, cycles per second, bytes of memory, kilobytes per second),
- the level(s) at which the estimates or measures have been made (such as software unit, CSCI, or executable program).

8.1.6. Requirements traceability. This section shall provide:

- traceability from each CSCI source file to the software unit(s) that it implements,
- traceability from each software unit to the source files that implement it,
- traceability from each computer hardware resource utilisation measurement given in 5.4 to the CSCI requirements it addresses. (Alternatively, this traceability may be provided in 5.4),
- traceability from each CSCI requirement regarding computer hardware resource utilisation to the utilisation measurements given in 5.4.

8.1.7. Notes. This section shall contain any general information that aids in understanding this specification (e.g. background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

8.1.8. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g. charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendices may be bound as separate documents for ease in handling. Appendices shall be lettered alphabetically (A, B, etc.)

44.. SYSTEM/SUBSYSTEM DESIGN DESCRIPTION (NCIA-DI-SWSSDD)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title SYSTEM/SUBSYSTEM DESIGN DESCRIPTION	2. Identification Number NCIA-DI-SWSSDD	Based on US-DOD-DI-IPSC-81432
3. Description / Purpose 3.1. The System/Subsystem Design Description (SSDD) describes the system- or subsystem-wide design and the architectural design of a system or subsystem. The SSDD may be supplemented by Interface Design Descriptions (IDDs) and Database Design Descriptions (DBDDs). 3.2. The SSDD, possibly supplemented by IDDs and DBDDs, is used as the basis for further system development. Throughout this DID, the term "system" may be interpreted to mean "subsystem" as applicable. The resulting document should be titled System Design Description or Subsystem Design Description (SSDD).		
4. Not Used	5. Office of Primary Responsibility	
6. Application / Interrelationship 6.1. Design pertaining to interfaces may be presented in the SSDD or in IDDs. Design pertaining to databases may be presented in the SSDD or in DBDDs.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Content requirements:

8.1.1. Scope. This section shall be divided into the following paragraphs.

8.1.1.1. Identification. This paragraph shall contain a full identification of the system to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

8.1.1.2. System overview. This paragraph shall briefly state the purpose of the system to which this document applies. It shall describe the general nature of the system; summarise the history of system development, operation and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

8.1.1.3. Document overview. This paragraph shall summarise the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

8.1.2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Purchaser stocking activities.

8.1.3. System-wide design decisions.

(1) This section shall be divided into paragraphs as needed to present system-wide design decisions, that is, decisions about the system's behavioural design (how it will behave, from a user's point of view, in meeting its requirements, ignoring internal implementation) and other decisions affecting the selection and design of system components. If all such decisions are explicit in the requirements or are deferred to the design of the system components, this section shall so state. Design decisions that respond to requirements designated critical, such as those for safety, security, or privacy, shall be placed in separate subparagraphs. If a design decision depends upon system states or modes, this dependency shall be indicated. Design conventions needed to understand the design shall be presented or referenced. Examples of system-wide design decisions are the following:

a. Design decisions regarding inputs the system will accept and outputs it will produce, including interfaces with other systems, configuration items, and manual operations (4.3.x of this DID identifies topics to be considered in this description). If part or all of this information is given in Interface Design Descriptions (IDDs), they may be referenced.

b. Design decisions on system behaviour in response to each input or condition, including actions the system will perform, response times and other performance characteristics, description of physical systems modelled, selected equations/algorithms/rules, and handling of un-.allowed inputs or conditions.

c. Design decisions on how system databases/data files will appear to the user (4.3.x of this DID identifies topics to be considered in this description). If part or all of this information is given in Database Design Descriptions (DBDDs), they may be referenced.

d. Selected approach to meeting safety, security, and privacy requirements.

e. Design and construction choices for hardware or hardware-software systems, such as physical size, colour, shape, weight, materials, and markings.

f. Other system-wide design decisions made in response to requirements, such as selected approach to providing required flexibility, availability, and maintainability.

8.1.4. System architectural design.

(1) This section shall be divided into the following paragraphs to describe the system architectural design. If part or all of the design depends upon system states or modes, this dependency shall be indicated. If design information falls into more than one paragraph, it may be presented once and referenced from the other paragraphs. Design conventions needed to understand the design shall be presented or referenced.

(2) Note: for brevity, this section is written in terms of organising a system directly into Hardware Configuration Items (HWCIs), Computer Software Configuration Items (CSCIs), and manual operations, but should be interpreted to cover organising a system into subsystems, organising a subsystem into HWCIs, CSCIs, and manual operations, or other variations as appropriate.

8.1.4.1. System components.

(1) This paragraph shall:

a. Identify the components of the system (e.g. subsystems, HWCIs, CSCIs, and manual operations). Each component shall be assigned a project-unique identifier. Note: a database may be treated as a CSCI or as part of a CSCI.

b. Show the static (such as "consists of") relationship(s) of the components. Multiple relationships may be presented, depending on the selected design methodology.

c. State the purpose of each component and identify the system requirements and system-wide design decisions allocated to it. (Alternatively, the allocation of requirements may be provided in 5.a.)

d. Identify each component's development status/type, if known (such as new development, existing component to be reused as is, existing design to be reused as is, existing design or component to be re-engineered, component to be developed for reuse, component planned for Build N, etc.). For existing design or components, the description shall provide identifying information, such as name, version, documentation references, location, etc.

e. For each computer system or other aggregate of computer hardware resources identified for use in the system, describe its computer hardware resources (such as processors, memory, input/output devices, auxiliary storage, and communications/network equipment). Each description shall, as applicable, identify the configuration items that will use the resource, describe the allocation of resource utilisation to each CSCI that will use the resource (for example, 20% of the resource's capacity allocated to CSCI 1, 30% to CSCI 2), describe the conditions under which utilisation will be measured, and describe the characteristics of the resource.

i. Descriptions of computer processors shall include, as applicable, manufacturer name and model number, processor speed/capacity, identification of instruction set architecture, applicable compiler(s), word size (number of bits in each computer word), character set standard (such as ASCII, EBCDIC), and interrupt capabilities.

ii. Descriptions of memory shall include, as applicable, manufacturer name and model number and memory size, type, speed, and configuration (such as 256 KB cache memory, 16 MB RAM (4 MB x 4)).

iii. Descriptions of input/output devices shall include, as applicable, manufacturer name and model number, type of device, and device speed/capacity.

iv. Descriptions of auxiliary storage shall include, as applicable, manufacturer name and model number, type of storage, amount of installed storage, and storage speed.

v. Descriptions of communications/network equipment, such as modems, network interface cards, hubs, gateways, cabling, high speed data lines, or aggregates of these or other components, shall include, as applicable, manufacturer name and model number, data transfer rates/capacities, network topologies, transmission techniques, and protocols used.

vi. Each description shall also include, as applicable, growth capabilities, diagnostic capabilities, and any additional hardware capabilities relevant to the description.

f. Present a specification tree for the system, that is, a diagram that identifies and shows the relationships among the planned specifications for the system components.

8.1.4.2. Concept of execution. This paragraph shall describe the concept of execution among the system components. It shall include diagrams and descriptions showing the dynamic relationship of the components, that is, how they will interact during system operation, including, as applicable, flow of execution control, data flow, dynamically controlled sequencing, state transition diagrams, timing diagrams, priorities among components, handling of interrupts, timing/sequencing relationships, exception handling, concurrent execution, dynamic allocation/de-allocation, dynamic creation/deletion of objects, processes, tasks and other aspects of dynamic behaviour.

8.1.4.3. Interface design. This paragraph shall be divided into the following subparagraphs to describe the interface characteristics of the system components. It shall include both interfaces among the components and their interfaces with external entities such as other systems, configuration items, and users. Note: There is no requirement for these interfaces to be completely designed at this level; this paragraph is provided to allow the recording of interface design decisions made as part of system architectural design. If part or all of this information is contained in Interface Design Descriptions (IDDs) or elsewhere, these sources may be referenced.

8.1.4.3.1. Interface identification and diagrams. This paragraph shall state the project-unique identifier assigned to each interface and shall identify the interfacing entities (systems, configuration items, users, etc.) by name, number, version and documentation references, as applicable. The identification shall state which entities have fixed interface characteristics (and therefore impose interface requirements on interfacing entities) which are being developed or modified (thus having interface requirements imposed on them). One or more interface diagrams shall be provided, as appropriate, to depict the interfaces.

8.1.4.3.2. Project-unique identifier of interface.

(1) This paragraph (beginning with 4.3.2) shall identify an interface by project-unique identifier, shall briefly identify the interfacing entities, and shall be divided into subparagraphs as needed to describe the interface characteristics of one or both of the interfacing entities. If a given interfacing entity is not covered by this SSDD (for example, an external system) but its interface characteristics need to be mentioned to describe interfacing entities that are, these characteristics shall be stated as assumptions or as "When [the entity not covered] does this, [the entity that is covered] will ..." This paragraph may reference other documents (such as data dictionaries, standards for protocols, and standards for user interfaces) in place of stating the information here. The design description shall include the following, as applicable, presented in any order suited to the information to be provided, and shall note any differences in these characteristics from the point of view of the interfacing entities (such as different expectations about the size, frequency, or other characteristics of data elements):

a. Priority assigned to the interface by the interfacing entity(ies)

b. Type of interface (such as real-time data transfer, storage-and-retrieval of data, etc.) to be implemented

c. Characteristics of individual data elements that the interfacing entity(ies) will provide, store, send, access, receive, etc., such as:

   i. Names/identifiers
      - Project-unique identifier
      - Non-technical (natural-language) name
      - ACCS standard data element name
      - Technical name (e.g., variable or field name in code or database)
      - Abbreviation or synonymous names

   ii. Data type (alphanumeric, integer, etc.)

   iii. Size and format (such as length and punctuation of a character string)

   iv. Units of measurement (such as meters, dollars, nanoseconds)

   v. Range or enumeration of possible values (such as 0-99)

   vi. Accuracy (how correct) and precision (number of significant digits)

   vii. Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply

   viii. Security and privacy constraints

   ix. Sources (setting/sending entities) and recipients (using/receiving entities)

d. Characteristics of data element assemblies (records, messages, files, arrays, displays, reports, etc.) that the interfacing entity(ies) will provide, store, send, access, receive, etc., such as:

   i. Names/identifiers
      - Project-unique identifier to be used for traceability
      - Non-technical (natural language) name
      - Technical name (e.g., record or data structure name in code or database)
      - Abbreviations or synonymous names

   ii. Data elements in the assembly and their structure (number, order, grouping)

   iii. Medium (such as disk) and structure of data elements/assemblies on the medium

   iv. Visual and auditory characteristics of displays and other outputs (such as colours, layouts, fonts, icons and other display elements, beeps, lights)

   v. Relationships among assemblies, such as sorting/access characteristics

   vi. Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the assembly may be updated and whether business rules apply

   vii. Security and privacy constraints

   viii. Sources (setting/sending entities) and recipients (using/receiving entities)

e. Characteristics of communication methods that the interfacing entity(ies) will use for the interface, such as:

   i. Project-unique identifiers(s)

   ii. Communication links/bands/frequencies/media and their characteristics

   iii. Message formatting

   iv. Flow control (such as sequence numbering and buffer allocation)

v. Data transfer rate, whether periodic/aperiodic, and interval between transfers

vi. Routing, addressing, and naming conventions

vii. Transmission services, including priority and grade

viii. Safety/security/privacy considerations, such as encryption, user authentication, compartmentalisation, and auditing.

f. Characteristics of protocols that the interfacing entity(ies) will use for the interface, such as:

i. Project-unique identifier(s)

ii. Priority/layer of the protocol

iii. Packeting, including fragmentation and reassembly, routing, and addressing

iv. Legality checks, error control, and recovery procedures

v. Synchronisation, including connection establishment, maintenance, termination

vi. Status, identification, and any other reporting features

g. Other characteristics, such as physical compatibility of the interfacing entity(ies) (dimensions, tolerances, loads, voltages, plug compatibility, etc.)

8.1.5. Requirements traceability.

(1) This paragraph shall contain:

a. Traceability from each system component identified in this SSDD to the system requirements allocated to it. (Alternatively, this traceability may be provided in 4.1)

b. Traceability from each system requirement to the system components to which it is allocated.

8.1.6. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall contain an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

8.1.7. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendices may be bound as separate documents for ease in handling. Appendices shall be lettered alphabetically (A, B, etc.).

45. SOFTWARE VERSION DESCRIPTION (NCIA-DI-SWSVD)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title SOFTWARE VERSION DESCRIPTION	2. Identification Number NCIA-DI-SWSVD	Based on US-DOD-DI-IPSC-81442
3. Description / Purpose 3.1. The Software Version Description (SVD) identifies and describes a software version consisting of one or more Computer Software Configuration Items (CSCIs). It is used to release, track and control software versions. 3.2. The term "version" shall be applied to the initial release of the software, to a subsequent release of that software, or to one of multiple forms of the software released at approximately the same time (for example, to different sites).		
4. Not Used	5. Office of Primary Responsibility	
6. Application / Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Content requirements:

8.1.1. Scope. This section shall be divided into the following paragraphs.

8.1.1.1. Identification. This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s). It shall also identify the intended recipients of the SVD to the extent that this identification affects the contents of the software released (for example, source code may not be released to all recipients).

8.1.1.2. System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarise the history of system development, operation and maintenance; identify the project office, acquirer, user, developer and support agencies; identify current and planned operating sites; and list other relevant documents.

8.1.1.3. Document overview. This paragraph shall summarise the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

8.1.2. Referenced documents. This section shall list the number, title, revision and date of all documents referenced in this report. This section shall also identify the source for all documents not available through normal Purchaser stocking activities.

8.1.3. Version description. This section shall be divided into the following paragraphs.

8.1.3.1. Inventory of materials released. This paragraph shall list by identifying numbers, titles, abbreviations, dates, version numbers, and release numbers, as applicable, all physical media (for example, listings, tapes, disks) and associated documentation that make up the software version being released. It shall include applicable security and privacy considerations for these items, safeguards for handling them, such as concerns for static and magnetic fields, and instructions and restrictions regarding duplication and license provisions.

8.1.3.2. Inventory of software contents. This paragraph shall list by identifying numbers, titles, abbreviations, dates, version numbers, and release numbers, as applicable, all computer files that make up the software version being released. Any applicable security and privacy considerations shall be included.

8.1.3.3. Changes installed. This paragraph shall contain a list of all changes incorporated into the software version since the previous version. If change classes have been used, such as the Class I/Class II changes in MIL-STD-973, the changes shall be separated into these classes. This paragraph shall identify, as applicable, the problem reports, change proposals, and change notices associated with each change and the effects, if any, of each change on system operation and on interfaces with other hardware and software. This paragraph does not apply to the initial software version.

8.1.3.4. Adaptation data. This paragraph shall identify or reference all unique-to-site data contained in the software version. For software versions after the first, this paragraph shall describe changes made to the adaptation data.

8.1.3.5. Related documents. This paragraph shall list by identifying numbers, titles, abbreviations, dates, version numbers, and release numbers, as applicable, all documents pertinent to the software version being released but not included in the release.

8.1.3.6. Installation instructions.

(1) This paragraph shall provide or reference the following information, as applicable:

a. Instructions for installing the software version

b. Identification of other changes that have to be installed for this version to be used, including site-unique adaptation data not included in the software version

c. Security, privacy, or safety precautions relevant to the installation

d. Procedures for determining whether the version has been installed properly

e. A point of contact to be consulted if there are problems or questions with the installation

8.1.3.7. Possible problems and known errors. This paragraph shall identify any possible problems or known errors with the software version at the time of release, any steps being taken to resolve the problems or errors, and instructions (either directly or by reference) for recognising, avoiding, correcting or otherwise handling each one. The information presented shall be appropriate to the intended recipient of the SVD (for example, a user agency may need advice on avoiding errors, a support agency on correcting them).

8.1.4. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

8.1.5. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendices may be bound as separate documents for ease in handling. Appendices shall be lettered alphabetically (A, B, etc.).

46. TEST DESCRIPTION (NCIA-DI-TETD20)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title TEST DESCRIPTION	2. Identification Number NCIA-DI-TETD20	Based on MIL-STD-498
3. Description / Purpose 3.1 The Test Descriptions (TD) shall provide for each Volume as defined in the CDRL the detailed test steps and all preparations involved. 3.2. The TD shall contain separate test cases whenever a test of a system defers in any way from the same test of an initially delivered system.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO – T&E	
6. Application / Interrelationship 6.1 This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the Test & Evaluation requirements as delineated in VOICE LOOP SOW, Annex E.		
7. Applicable Forms 7.1 See VOICE LOOP SOW,		

8. Preparation Instructions

8. The TD shall contain the following information:

8.1 Scope.

8.1.1. Identification of the System Under Test (SUT)

(1) Identification number(s), title(s), version number(s), and release number(s).

8.1.3. Document overview.

(1) Summary of the objectives of the Test Cases collected within this document and any security or privacy considerations associated with their use.

8.2. Referenced documents.

(1) A list of all documents referenced, including their numbers, titles, revisions and release dates.

(2) Identify the source for all documents not available through normal Purchaser stocking activities.

(3) Materials to be used as evidence for the tests with verification method 'Inspection' or 'Analysis' shall be included as annex to the Test Description.

8.3. Test Case Groups.

(1) Test Case Groups consist of one or more Test Cases. All the Test Preparations, the Prerequisite Conditions plus the Assumptions and Constrains are the same for all requirements to be verified.

(2) When the required information duplicates information previously provided, that information may be referenced rather than repeated.

8.3.1. Project-unique identifier of a Group of Test Cases.

8.3.2. Description

(1) Description of how the Test Cases are grouped. Safety precautions, marked by WARNING or CAUTION, and security and privacy considerations shall be included as applicable.

8.3.2. Hardware preparation.

(1) The procedures necessary to prepare the hardware common to more than one test case. Reference may be made to published operating manuals for these procedures. The following shall be provided, as applicable:

- The specific hardware to be used, uniquely identified
- Any hardware switch settings
- Any cabling necessary to connect the hardware
- Diagrams to show hardware configurations
- Step-by-step instructions for placing the hardware in a state of readiness

8.3.3. Software preparation.

(1) The procedures necessary to prepare any software, including data, common to more than one test case. Reference may be made to published software manuals for these procedures. The following information shall be provided, as applicable:

- The specific software to be used, uniquely identified
- The storage medium of the item(s) under test (e.g. magnetic tape, diskette, USB key)
- The storage medium of any related software (e.g. simulators, test drivers, databases)
- Instructions for loading the software, including required sequence
- Instructions for software initialisation
- Diagrams showing data paths as covered during the tests.

8.3.4. Other pre-test preparations.

(1) Ay other pre-test personnel actions, preparations, or procedures common to more than one test case.

8.4. Test Cases.

(1) When the required information duplicates information previously provided, that information may be referenced rather than repeated. The following paragraphs shall be provided for each of the Test Cases:

8.4.1 Project-unique identifier.

8.4.2. Objective(s).

(1) The test case's purpose and a brief description of the test.

8.4.3. Requirements addressed.

- Each of the system requirements addressed by the test case.
- In case of a partial verification of a requirement, identify the exact portion of the requirement to be verified.
- In case Post Test Analysis is required to complete the verification of a requirement, identify what the PTA will consist of.
- Anticipated time required for the Test Case Execution.

8.4.4. Prerequisite conditions.

(1) Any prerequisite conditions that must be established prior to executing the test case. The following considerations shall be included, specifically for the Test Case, as applicable:

- Pre-set Hardware conditions or electrical states necessary to run the test case
- Pre-set Software configurations necessary to be set/reset prior to test commencement (e.g. flags, initial breakpoints, pointers, control parameters, or initial data).
- Initial conditions to be used in making timing measurements (e.g. time synchronization).
- Conditioning of the simulated environment
- Test Tools and method of installation in the facility
- Description of support equipment required from the Purchaser.
- Extent of anticipated Purchaser participation
- Identification and location of sensing and recording devices, including model numbers.

- Interface wiring diagrams between sensing and recording devices.
- Calibration constants and methods of calibration
- Accuracy required.
- Operating Instructions.
- Other special conditions peculiar to the test case.

8.4.5. Assumptions and constraints.

- Any assumptions made
- Any constraints or limitations imposed on the execution of the test case (e.g. limitations on timing, interfaces, equipment, personnel, and database/data files etc.).
- Approved waivers or exceptions and their effects or impacts upon the test case.

8.4.6. Test inputs.

(1) The Contractor shall deliver the test inputs which include, but shall not be limited to, scenario files, configuration files, adaptation files etc. This paragraph shall describe the test inputs necessary for the test case. The following shall be provided, as applicable:

- Name, purpose, and description (e.g., range of values, accuracy) of each test input
- Source of the test input and the method to be used for selecting the test input
- Whether the test input is real or simulated
- Time or event sequence of test input
- The manner in which the input data will be controlled to:
- Test the item(s) with a minimum/reasonable number of data types and values
- Exercise the item(s) with a range of valid data types and values that test for overload, saturation, and other "worst case" effects
- Exercise the item(s) with invalid data types and values to test for appropriate handling of irregular inputs
- Permit re-testing, if necessary

8.4.7. Expected test results.

(1) All expected test results for the test case, both intermediate and final.

8.4.8. Criteria for evaluating results.

(1) Criteria to be used for evaluating the intermediate and final results of the test case.

- The range or accuracy over which an output can vary and still be acceptable
- Minimum number of combinations or alternatives of input and output conditions that constitute an acceptable test result
- Maximum/minimum allowable test duration, in terms of time or number of events
- Maximum number of interrupts, halts, or other system breaks that may occur
- Allowable severity of processing errors
- Conditions under which the result is inconclusive and re-testing is to be performed
- Conditions under which the outputs are to be interpreted as indicating irregularities in input test data, in the test database/data files, or in test procedures
- Allowable indications of the control, status, and results of the test and the readiness for the next test case (may be output of auxiliary test software)
- Additional criteria not mentioned above.

8.4.9. Actions on System Halt.

(1) Actions to follow in the event of a system halt or indicated error, such as:

- Recording of critical data from indicators for reference purposes
- Halting or pausing time-sensitive test-support software and test apparatus
- Collection of system and operator records of test results

8.4.10. Recording and Reduction Analysis.

(1) Procedures in detail to be used to record data and to reduce and analyse test outputs to accomplish the following, as applicable:

- Detect whether an output has been produced
- Identify media and location of data produced by the test case
- Evaluate output as a basis for continuation of test sequence
- Evaluate test output against required output

8.4.11. Test procedure.

(1) A series of individually numbered test steps listed sequentially in the order in which they are to be performed. For convenience in document maintenance, the test procedures may be included as an appendix and referenced in this paragraph.

(2) The appropriate level of detail per test step is one operator action per test step with possibly multiple expected results.

(4) In case the Contractor decides to apply externally produced test procedures/cases, this complete paragraph applies to those test procedures/cases.

8.5. Requirements traceability.

- Traceability from each test case in this TD to the system requirements it addresses. If a test case addresses multiple requirements, traceability from each set of test steps to the requirement(s) addressed.
- Traceability from each system requirement covered by this TD to the test case(s) that address it. If a requirement is allocated to multiple Test Cases, the traceability shall indicate the portion of the requirement that is covered per Test Case.
- If the Contractor decides to refer to sub-contractor test documentation, he shall ensure full traceability as mentioned above to the sub-contractor test documentation.

8.6 Notes.

(1) General information that aids in understanding this document (e.g. background information, glossary of terms, rationales), including an alphabetical listing of all acronyms, abbreviations and their meanings.

8.7 Appendices.

(1) Information published separately for convenience in document maintenance (e.g. charts, classified data). Appendices may be separate documents for ease in handling.

47. TEST PLAN (NCIA-DI-TETP20)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title TEST PLAN	2. Identification Number NCIA-DI-TETP20	Based on N/A
3. Description / Purpose 3.1. The Test Plan (TP) shall specify the scope, approach, resources, and schedule of intended testing activities. It identifies test items, the features to be tested, the testing tasks, responsibilities, required resources and any risks requiring contingency planning.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO - T&E	
6. Application / Interrelationship 6.1 This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the Test & Evaluation requirements as delineated in VOICE LOOP SOW.		
7. Applicable Forms 7.1 See VOICE LOOP SOW, Annex E.		

8. Preparation Instructions

8. The Test Plan (TP) shall contain the following information:

8.1. Scope.

8.1.1. Test Phase

(1) Identification of the Test Phase or Speciality Test to which this TP applies.

8.1.2. Test classes

(1) The types or classes of test that will be performed (e.g. timing tests, erroneous input tests, maximum capacity tests, workmanship tests etc.).

8.1.3. Identification of the System under Test (SUT)

(1) Identification number(s), title(s), version number(s), and release number(s).

8.1.4. Document Overview

(1) The purpose and contents of this document and any security or privacy considerations associated with its use.

8.1.5. Relationships to other plans

(1) Relationships to related project management plans.

8.2. Referenced Documents

(1) A list of all documents referenced from within the Test Plan, including their numbers, titles, revisions and release dates.

(2) Identify the source for all documents not available through normal Purchaser stocking activities.

8.3. General Test Approach

8.3.1. Test Concepts

(1) Background information required to substantiate the test philosophy applied and to help understand and evaluate this TP.

8.3.2. Test progression

(1) In cases of progressive or cumulative test events or test sessions, explain the planned sequence or progression, preferably in a graphical format.

8.3.3. Data recording, reduction, and analysis Policy

(1) Description of the data recording, reduction, and analysis procedures to be used during and after the tests identified in this TP. Include, as applicable, manual, automatic, and semi-automatic techniques for recording test results, manipulating the raw results into a form suitable for evaluation, and retaining the results of data reduction and analysis.

8.4. Test schedule

8.4.1 Time Planning

(1) A chronologically sorted list of Test Events, possibly sub-divided into Test Sessions and the anticipated time frames during which they will be conducted.

8.4.2 Detailed Break-down

- Preparation, review, and approval of the all the required Test Documentation
- Collection of database/data file values, input values, and other operational data needed for the testing
- Pre-test on-site period needed for setting up the test environment and other equipment, system debugging, orientation, and familiarisation
- On-site test period and portions of the period assigned to major portions of test.
- Conduct of the tests
- Contingency for Post Test Analysis and re-testing

8.5. Planned Test Events.

(1) This paragraph shall identify and describe each test event in accordance with the Test Event List in Appendix A to this TP. This paragraph shall be divided into but shall be not limited to the following subparagraphs to describe the total scope of the planned testing.

8.5.1. Project-unique identifier and Name of a Test Event.

8.5.2. System Under Test (SUT).

(1) Identify a (sub-)system or other entity by name and project-unique identifier and version.

8.5.4. Test Objective(s)

(1) Description of what the Test Event strives to achieve.

8.5.5. Verification method(s) to be used

(1) I.a.w. VOICE LOOP SOW, Annex E.

(2) Descriptions of the materials to be used as evidence for the tests that are planned to be executed with verification method 'Inspection' or 'Analysis'.

8.5.6. Special requirements

(1) List facility time, weapon simulation, extent of test, use of a special input or database.

(2) Any special needs, such as multi-shift operation and retention of key skills to ensure continuity and consistency in extensive test programs.

8.5.7. Assumptions and constraints

(1) Anticipated limitations on the test due to system or test conditions - timing, interfaces, equipment, personnel, database, etc.

8.5.8. Safety, security, and privacy considerations

8.5.9. Purchaser Furnished Property

(1) Description of support equipment required from the Purchaser plus its lead-in time.

8.5.10 Risks

(1) Any Risk that may impact the Test Event, the owner of the Risk plus the required mitigation actions.

8.6 Notes

(1) General information that aids in understanding this document (e.g. background information, glossary of terms, rationales), including an alphabetical listing of all acronyms, abbreviations and their meanings.

8.7 Appendices

(1) Information published separately for convenience in document maintenance (e.g. charts, classified data). Appendices may be separate documents for ease in handling.

48. TEST REPORT (NCIA-DI-TETR20)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title TEST REPORT	2. Identification Number NCIA-DI-TETR20	Based on MIL-STD-498
3. Description / Purpose 3.1. The Test Report (TR) shall be a record of the testing activities and results. It shall also contain an evaluation of the test items against the exit criteria. 3.2. A TR enables the Purchaser to assess the test results.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/PRD/T&E	
6. Application / Interrelationship 6.1. This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the Test & Evaluation requirements as delineated in VOICE LOOP SOW.		
7. Applicable Forms 7.1 See VOICE LOOP SOW, Annex E.		

8. Preparation Instructions

8. The TR shall contain the following information:

8.1. Scope.

8.1.1. Identification of the Test Event to which this document applies, including, as applicable, identification number(s), title(s), version number(s), and release number(s).

8.1.2. System overview, of the System Under Test (SUT), including a description of the hardware- and software configurations used for the test event plus the general testing approach used

8.1.3. Document overview, summarises the purpose and contents of this document and describes any security or privacy considerations associated with its use.

8.2. Referenced Documents

(1) A list of all documents referenced, including their numbers, titles, revisions and release dates.

(2) Identify the source for all documents not available through normal Purchaser stocking activities.

8.3. Overview of test results.

8.3.1. Overall assessment of the system tested

8.3.2. remaining defects, deficiencies, limitations, or constraints

(1) Any remaining defects, deficiencies, limitations, or constraints that were detected by the testing performed. Problem/change reports may be used to provide defect- or deficiency information. For each remaining defect and deficiency, limitation or constraint, describe:

a. Its impact on system performance, including identification of requirements not met

b. The impact on system design to correct it

c. A recommended solution/approach for correcting it

8.3.2. Impact of test environment.

(1) An assessment of the manner in which the test environment was different from the operational environment and the effect of this difference on the test results.

8.3.3. Recommendation

(1) Recommended improvements in the design, operation, or testing of the system tested. A discussion of each recommendation and its impact on the system may be provided.

8.4. Detailed test results per Test Case

8.4.1. Project-unique identifier of a test case.

8.4.2. Test Classification

(1) Dry-Run or Formal Run.

8.4.3. Test Attributes

(1) Date(s), time(s) and location(s) on which the test case was executed.

8.4.4. Test Participants

(1) (Sub-) Contractor and Purchaser test participants as well as participants of external agencies.

8.4.5. Test results

(1) In accordance with the rules specified in Annex E:

- Test Case Execution Status
- Test Case Result Status
- Verification Status of each requirement associated with the test case. In case of Partial Verification, state the exact portion of the requirement that was verified.

8.4.6 Deferral or Re-Test

(1) In case of deferral of test case execution or intended re-execution:

- Rationale
- Test Event for which the test case is re-scheduled.

8.5. Observations & Problems

(1) For each observation and problem at least the information as follows:

8.5.1. Project-unique identifier of the Observation/Problem

8.5.2. Observation/Problem Title.

8.5.3. Description of the Observation/Problem(s) that occurred

8.5.4. Identification of the test case and step(s) in which it occurred

8.5.5. Reference(s)

(1) Reference(s) to the associated problem/change report(s) and backup data, as applicable

8.5.6. Repetitions

(1) The number of times the test case or test step was repeated in attempting to correct the problem(s) and the outcome of each attempt

8.5.7. Back-up points

(1) Back-up points or test steps where tests were resumed for re-testing

8.5.8. Criticality

(1) As defined at Project SOW, Annex E.

8.6. Deviations

(1) Deviations from the test procedures, identifying the following details for each test case in which deviations occurred.

8.6.1. Project-unique identifier

(1) Identifier of the test case and test step(s).

8.6.2. Description

(1) Description of the deviation(s) (Red-lined test procedures may be used as evidence).

8.6.3. The rationale

(1) The reason for the deviation(s)

8.6.4. Impact

(1) An assessment of the deviations' impact on the validity of the test case

8.6.5. Recommendation

(1) Recommendation for acceptance or rejection of the test.

8.7 Notes

(1) General information that aids in understanding this document (e.g. background information, glossary of terms, rationales), including an alphabetical listing of all acronyms, abbreviations and their meanings.

8.8 Appendices

(1) Information published separately for convenience in document maintenance (e.g. charts, classified data). Appendices may be separate documents for ease in handling. Appendices shall include but are not be limited to:

8.8.1. Test Result Log.

(1) A complete record of the test events covered by this report. This test log shall include the information as described in paragraphs 8.4, 8.5 and 8.6.

8.8.2. Signed Test Order.

(1) A Physical copy of the Test Order signed during the TRR by all the parties involved. This is the evidence that the Purchaser endorses the Readiness of the contractor to enter Formal testing. This

8.8.3. Updated TRR Presentation(s).

(1) The TRR Presentation(s) as presented including changes made during the TRR.

8.8.4. Signed Minutes of Meeting.

(1) The MoM of related Technical Interface Meetings (TIM), status Meetings, the Dry-Run Kick-Off and Wash-up Meetings, the TRR and Debriefing(s).

8.8.5. As-Run Test Descriptions.

(1) The physical TD that resulted from the test execution, including the as-run test data. This is the copy that holds all hand-written comments.

8.8.6. Test Logs.

(1) These include the individual test logs (the copy that is hand-written) and the test log in which all results and observations are captured.

8.8.7. Evidences.

(1) All evidences acquired during the test execution. These may include but are not limited to pictures, recordings, screenshots, log-files, Certificates of Conformity, special reports, supporting documentation that was used during the tests, analysis reports etc.

8.8.8 Post Test Analysis (PTA) results.

(1) This appendix shall provide detailed results of conducted PTA. In case the verification of requirements is affected by the PTA results, this appendix shall address the verification criteria. In case the PTA

applies to observations, each observation shall be separately addressed with a rationale based on the analysis results.

49. TEST READINESS REVIEW DOCUMENTATION (NCIA-DI-TETRRD20)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title TEST READINESS REVIEW DOCUMENTATION	2. Identification Number NCIA-DI-TETRRD20	Based on N/A
3. Description / Purpose 3.1. The Test Readiness Review Documentation (TRRD) shall provide all the data necessary for the Purchaser to assess the readiness of the Contractor to enter Formal Tests. 3.2. The TRRD shall include all items as specified below.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO - T&E	
6. Application / Interrelationship 6.1. This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the Test & Evaluation requirements as delineated in Annex E to the SOW.		
7. Applicable Forms 7.1 See VOICE LOOP SOW Annex E.		

8. Preparation Instructions

8. TRR Checklist.

(1) The items in this checklist are all required for each TRR. The Contractor may apply for exceptions when the draft CDRL Data Item 640 (TRRD) is issued.

8.1 Conditions for all Contractual Documentation

- Each Contractual Document as required in this TRR check list is under Version Control.
- The latest Purchaser approved version of each of the documents is present.
- Each of the changes to the approved documents is Purchaser approved and incorporated.
- All documents referred to from any of the contractual documents are present.

8.2 Requirement Documentation

8.2.1. Functional Baseline (FBL)

- The FBL is clearly identified with the formal denotation and version.
- Implemented changes do not affect the requirement coverage of the test documentation.

8.2.2. Requirements Verification Limitations

8.2.2.1. CDRL Data Item 008 - Requests for Deviation

8.2.2.2. CDRL Data Item 009 - Requests for Waivers

8.2.2.3. Capabilities and associated requirements allocated to the test event not yet implemented.

- Those cases that might affect the planned tests are clearly identified
- It is clear when the affected requirements will be tested

8.2.3 All Product Baseline (PBL) documentation that is required for the test event.

8.2.4 All Allocated Baseline (ABL) documentation that is required for the test event.

8.3. Test Documentation

8.3.1. CDRL Data Item 046 - Test Description (TD)

8.3.2. CDRL Data Item 047 - Test Plan (TP)

8.3.3. CDRL Data Item 048 - Test Reports (TR)

- Test Reports of previous formal tests activities.
- Test Reports of regression tests.

8.4. Other Documentation

8.5. Contractor Developed Documentation

8.5.1. Related Unit Test-, Integration Test- and Dry-Run results are present.

8.5.2. User Documentation:

- A complete set of user documentation is present.
- The user documentation represents the correct system version.
- Any electronic documentation has been installed and tested for functioning.

8.6 Hardware Configuration of the System Under Test (SUT)

8.6.1. CDRL Data Item 004 Configuration Status Accounting Data

8.6.2. CDRL Data Item 012 Product Drawings and Associated Equipment Lists

- Any differences between the documented and actual Configuration are identified.

8.6.1.1. The Hardware of the SUT is:

- Under configuration control. A reference is provided to the appropriate section of the CM database.
- The settings of each hardware item are recorded and attached to the Test Description.
- Configuration files are under configuration control and attached to the Test Description.
- Have approved Firmware Test Reports and Version Descriptions available.

8.6.1.2. Hardware items that were replaced:

- Are identified.
- Have certificates of conformity.
- Have approved Firmware Test Reports and Version Descriptions available.

8.6.1.3. Any known problems of the Hardware items under test:

- Are documented and under configuration control.
- Have a ‘work around’ defined. A rationale is available for all work-arounds that are either in-place or need to be installed during the test.

8.7 Software Configuration of the System Under Test (SUT)

8.7.1. CDRL Data Item 045 - Software Version Descriptions

- Possible implications for the test are identified.
- The Software Under Test is identified in a Software Version Description (SVD).
- The version of each CSCI in this release is as stated in the SVD. Checksum mechanism shall be used to verify the versions.
- The known problems of the Software Under Test as in stated in the SVD:
- Are Documented and under configuration control. A reference exists for each Problem to either the PD/A database or to the PTR database.
- Have a ‘work around’ defined (i.e. Patches installed). A rationale is available for all patches that are either installed or need to be installed during the test.

8.7.2. Adaptation Data

- The ADP data is under configuration control. A reference is provided to the appropriate section of the CM database.
- The version of the installed ADP data is as stated in the SVD. The values of those fields of the adaptation data that, upon change, can influence the expected results are specified.

8.7.3. Other Test Items (Scenarios, Script files etc.)

- The data is under configuration control.
- The data to be used during the test is identified and approved. A summary of the contents of the files is presented.

8.7.4. COTS Licenses

- Under configuration control. A reference is provided to the appropriate section of the CM database.

8.8. Test environment

(1) Identified in a Product Drawings and Associated Equipment Lists (CDRL 012) and available. Alphanumeric and graphic representations of the configuration are provided

8.8.1. Infrastructure

- The document has been approved
- Implemented ECPs have been approved.
- Implemented ECPs have been incorporated in the documentation
- Implemented ECPs do not affect the requirement coverage of the test docs.

8.8.2. Hardware environment

- Any deviations from the above mentioned document are recorded and approved.
- COTS Manuals are available.
- Calibration reports are available.
- Preventive maintenance reports are available.

8.8.3. Software environment

- The contractor provides evidence that the test environment is i.a.w. the Software Version Description (SVD).
- Any deviations from the above mentioned documents are recorded and approved.
- COTS Manuals are available.

8.8.4. Test Tools

8.8.4.1. COTS test tools:

- Are approved by the Purchaser.
- Are identified per function by vendor, type and version number.
- Are accompanied by a Qualification Report created i.a.w. the Contractor's Tool Qualification process or a certificate of conformity from the vendor.
- Are available and working.
- Have the Users' manuals available.

8.8.4.2. Developed test tools:

- Are approved by the Purchaser.
- Are identified per function by vendor, type and version number.
- Are accompanied by a Qualification Report created i.a.w. the Contractor's Tool Qualification process or a certificate of conformity from the vendor.
- Are available and working.
- Have the Users' manuals available.

8.8.4.3. Hardware Tools:

- Are approved by the Purchaser.
- Are identified per function by vendor, type and version number.
- Are accompanied by a Qualification Report created i.a.w. the Contractor's Tool Qualification process or a certificate of conformity from the vendor.
- Are available and working.
- Have the Users' manuals available.

8.9. Problem Reporting

8.9.1. PTRs

- A mechanism is established to document and track all problems.
- A list exists of implemented PTRs including:
  - Their impact on functionality.
  - Requirement coverage.
- A list exists of all unresolved PTRs including:
  - Their criticality.
  - The proposed solution.

8.9.2. PD/As

- There a mechanism established to document and track all observations of deficiencies/anomalies.
- A list exists of implemented PD/As including:
  - Their impact on functionality.
  - Requirement coverage.
- A list exists of all PD/As without an approved proposed disposition including:
  - Their criticality.
  - The proposed solution.

8.10. In Reference to the Test Order

- The detailed schedule fits in the overall Project Schedule.
- The detailed schedule takes into account briefings and de-briefings for every (group of) test case(s).
- The Test Team is defined: (the roles and required skills are identified, personnel are allocated).
- The sequence of the Test Cases is defined.
- The allocated Test Personnel are available during the time frames as defined in the sequence of Test Cases and are they informed about their participation.

8.11. Participating Organisations

- A list is present of the participating organisations, identifying:
  - the support required
  - allocated personnel
  - allocated assets
  - Points of Contact.
- The participating organisations are available during the time frames as defined in the sequence of Test Procedures and are they informed about their participation.

8.12. Training

(1) Planned test related training was actually performed for each of the members of the test team. (They know what their roles and responsibilities are).

8.13. Data Analysis

- Data recording, reduction and analysis requirements are identified, documented and approved by the Purchaser.

- Data recording / reduction facilities are fully functioning and accessible by the Purchaser.

8.14. Reporting

(1) A mechanism is established to control and retain the test results for future reference. (CDRL 636 - Test Report, CDRL 503 - Minutes of Meetings, etc.)

8.15. Miscellaneous

(1) List any observations from the test team on problems that may hamper the successful completion of the anticipated test.

9. Notification of Test (NoT) and Test Order (TO).

(1) The NoT and TO shall contain the following information:

- Test Details: Test Event Identifier, Test Event Title, Location, Test Cases, (sub-) Contractor Test Conductor
- Contractual Document Reference of the applicable Test Plan and Test Description(s).
- Schedule of all verification activities, pre-verification checkout, briefing, conduct, and debriefing.
- Invited Test Participants of the Purchaser, the Contractor, possible sub-Contractors or Suppliers and all involved Agencies.
- Remarks shall include any last minute changes to the verification procedure or required corrections to the Test Environment and/or SUT.

50. TEST TOOL USER MANUAL (NCIA-DI-TETSUM0)

NCI AGENCY DATA ITEM DESCRIPTION		
1. Title TEST TOOL USER MANUAL	2. Identification Number NCIA-DI-TETSUM0	Based on N/A
3. Description / Purpose 3.1. The Test Tool User Manual (TTUM) provides information about how to connect, set up, initialize, manage and use Test Tools.		
4. Not Used	5. Office of Primary Responsibility NCI Agency/Air C2 PO/T&E	
6. Application / Interrelationship 6.1 This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the Test & Evaluation requirements as delineated in VOICE LOOP SOW Annex E.		
7. Applicable Forms 7.1. See VOICE LOOP SOW, Annex E.		

8. The TTUM shall contain the following data for each Test Tool:

8.1 Tool Name

8.2 Scope

8.2.1 Identification.

(1) A full identification of the Test Tool, including, as applicable, identification number(s), title(s), version number(s), and release number(s).

8.2.2 System overview.

- The context in which the system will be used.
- A description of the general nature of the system
- The sponsor, acquirer, user, developer and possible support agencies
- The current and planned operating sites.

8.3. Referenced documents.

(1) The number, title, revision and date of all documents referenced in this report.

8.4 System Summary

8.4.1 System inventory.

(1) A list of hardware items, software installed including databases, libraries and data files that must be installed for the system to operate.

8.4.2 System environment.

(1) The hardware- and software platform(s), manual operations and other resources needed to install and run the system.

8.4.3 System architecture and overview of operation.

(1) A brief description of the architecture and operation of the system from the user's point of view. Include, as applicable:

- Logical components of the system and an overview of their purpose/operation.
- Performance characteristics that can be expected, such as but not limited to:

- Types, volumes, rates of input accepted
- Types, volume, accuracy, rate of outputs that the system can produce
- Typical response time and the factors that affect it
- Typical processing time and factors that affect it
- Limitations, such as number of events that can be tracked
- Error rate that can be expected
- Reliability that can be expected
- Possible configurations of the system in relation to its functions with interfacing systems.
- Supervisory controls that are implemented (such as passwords) to manage the system.

8.5 Restrictions and limitations of the tool.

(1) Description of any limitation of the tool that may impact the test results.

8.6 Restrictions of the System Under Test imposed by the tool.

(1) Description of any performance reductions of the SUT, induced by the use of the tool.

8.7 Adaptations of the System Under Test

(1) Description of the adaptations to be applied to the SUT that are required for the correct operation of the tool.

8.8 Security and privacy.

(1) An overview of the security and privacy considerations associated with the system. If applicable, include a warning regarding unauthorised copying of software or documents.

8.9 Assistance and problem reporting.

(1) Points of contact and procedures to be followed to obtain assistance and report problems.

8.10 Notes.

(1) General information that aids in understanding this document (e.g. background information, glossary of terms, rationales), including an alphabetical listing of all acronyms, abbreviations and their meanings.

8.11 Appendices.

(1) Information published separately for convenience in document maintenance (e.g. charts, classified data). Appendices may be separate documents for ease in handling.

9. The TSUM shall contain the following data for each Test Tool that is to be used by the Purchaser:

9.1 Access to the system.

9.1.1 First-time use of the system.

(1) Step-by-step procedures oriented to the first time/occasional user containing enough detail so that the user can reliably access and use the system. If applicable, include Safety precautions, marked by WARNING or CAUTION.

a. Equipment familiarisation.

Descriptions as appropriate of:

- Procedures for turning on power, making adjustments and turning off power.
- Dimensions and capabilities of the visual display screen(s)
- Appearance of the cursor, how to identify an active cursor if more than one cursor can appear, how to position a cursor, and how to use a cursor
- Keyboard layout and role of different types of keys and pointing devices

b. Access control.

An overview of the access and security features of the system that are visible to the user. Include, as applicable:

- How and from whom to obtain a password
- How to add, delete, or change passwords under user control
- Security and privacy considerations pertaining to the storage and marking of output reports and other media that the user will generate

c. Installation and setup.

Procedures the user must perform concerning installation and set up to:

- Access or install software
- Perform the installation
- Configure the system
- Delete or overwrite former files or data
- Enter parameters for software operation

9.1.2 Initiating a session.

(1) Step-by-step procedures that the user must perform to begin work, including any options available. Include a checklist for problem determination in case difficulties are encountered.

9.1.3 Stopping and suspending work.

(1) Description how the user can cease or interrupt use of the system and how to determine whether normal termination or cessation has occurred.

9.2 User Reference Guide.

9.2.1 Capabilities.

(1) A brief description of the menus, functions, or other processes in order to provide an overview of the use of the system.

9.2.2 Conventions.

(1) A brief description of any conventions used by the system, such as the use of colours in displays, the use of audible alarms, the use of abbreviated vocabulary, and the use of rules for assigning names or codes.

9.2.3 Processing procedures.

- The organisation of subordinate paragraphs, e.g., by function, by menu, by screen.
- Any necessary order in which procedures must be accomplished.
- Options and examples, as applicable, of the user's interface with the system through menus, graphical icons, data entry forms, user inputs, inputs from other software or hardware buttons and switches that may affect the system’s interface with the user.
- Outputs, diagnostic or error messages or alarms.
- Help facilities that can provide on-line descriptive or tutorial information.

9.2.4 Related processing.

(1) Description of related batch, offline, or background processing performed by the system that is not invoked directly by the user and is not described under any of the processing procedures documented, including any user responsibilities to support this processing.

9.2.5 Data backup.

(1) Procedures for creating and retaining backup data that can be used to replace primary copies of data in event of errors, defects, malfunctions, or accidents.

9.2.6 Recovery from errors, malfunctions, and emergencies.

(1) Detailed procedures for restart or recovery from errors or malfunctions occurring during processing and for ensuring continuity of operations in the event of emergencies.

9.2.7 Error Messages.

(1) List, or refer to an appendix that lists, all error messages, diagnostic messages, and information messages that can occur while accomplishing any user function, including the meaning of each message and the action that should be taken after each such message shall be identified and described.

9.2.8 Quick-reference guide.

(1) Summarise, as applicable, frequently-used function keys, control sequences, formats, commands, or other aspects of system use.

NATO Communications and Information Agency

RFQ-13639-ACCS

Statement of Work

for the Implementation of the

Enhancements to

NATO Integrated Air and Missile Defence System

Command and Control Communications

Voice Loop Communications

Contract Work Breakdown Structure

NCI Agency, Book II, Part 4, Section 1, Annex C

Rev. -, 30.05.2013

Intentionally Blank.

REVISION SHEET

ECP No.	Revision	Date
Initial Release	-	30 May 2013

INTENTIONALLY BLANK.

ANNEX C-1 – CONTRACT WORK BREAKDOWN STRUCTURE MATRIX

WBDS ID	Level 1	Level 2	Level 3
1	UR 6A Voice Loop Project		
1.0		Systems Engineering	
1.0.0			Development Systems Engineering
1.0.1			Site Systems Engineering
1.1		Development	
1.1.0			Voice Loop System
1.0.1			Voice Loop System Interface Architecture
1.2		Test & Evaluation	
1.2.0			Integration and Check-out
1.2.1			Test & Evaluation
1.2.2			Test issue resolution
1.3		Site Adaptation & Installation	
1.3.0			Site Assessment & pre Installation
1.3.1			Coordination of Site Works
1.3.2			Site Adaptations
1.3.3			Site installation and Check-out
1.3.4			Site related Inspections & National Certification
1.4		Configuration & Data management	
1.4.0			Purchaser Furnished Information
1.4.1			Requirements Management
1.4.2			Configuration management
1.5		Logistics	
1.5.0			ILS
1.5.1			RAMT
1.6		System Support	
1.6.0			Support Equipment & Spares
1.6.1			Supply Support
1.6.2			Training Delivery
1.7		Project Management	
1.7.0			Development Project Management
1.7.1			Site Project Management
1.7.2			Quality Assurance

1.7.3			**Contract Requirements management**
1.7.4			**Acceptance management**
1.7.5			**Project closure**
1.7.6			**Warranty**

NATO Communications and Information Agency

RFQ 13639

Statement of Work

for the Implementation of the

Enhancements to

NATO Integrated Air and Missile Defence System

Command and Control Communications

Part A – Voice Loop Communications

Site List

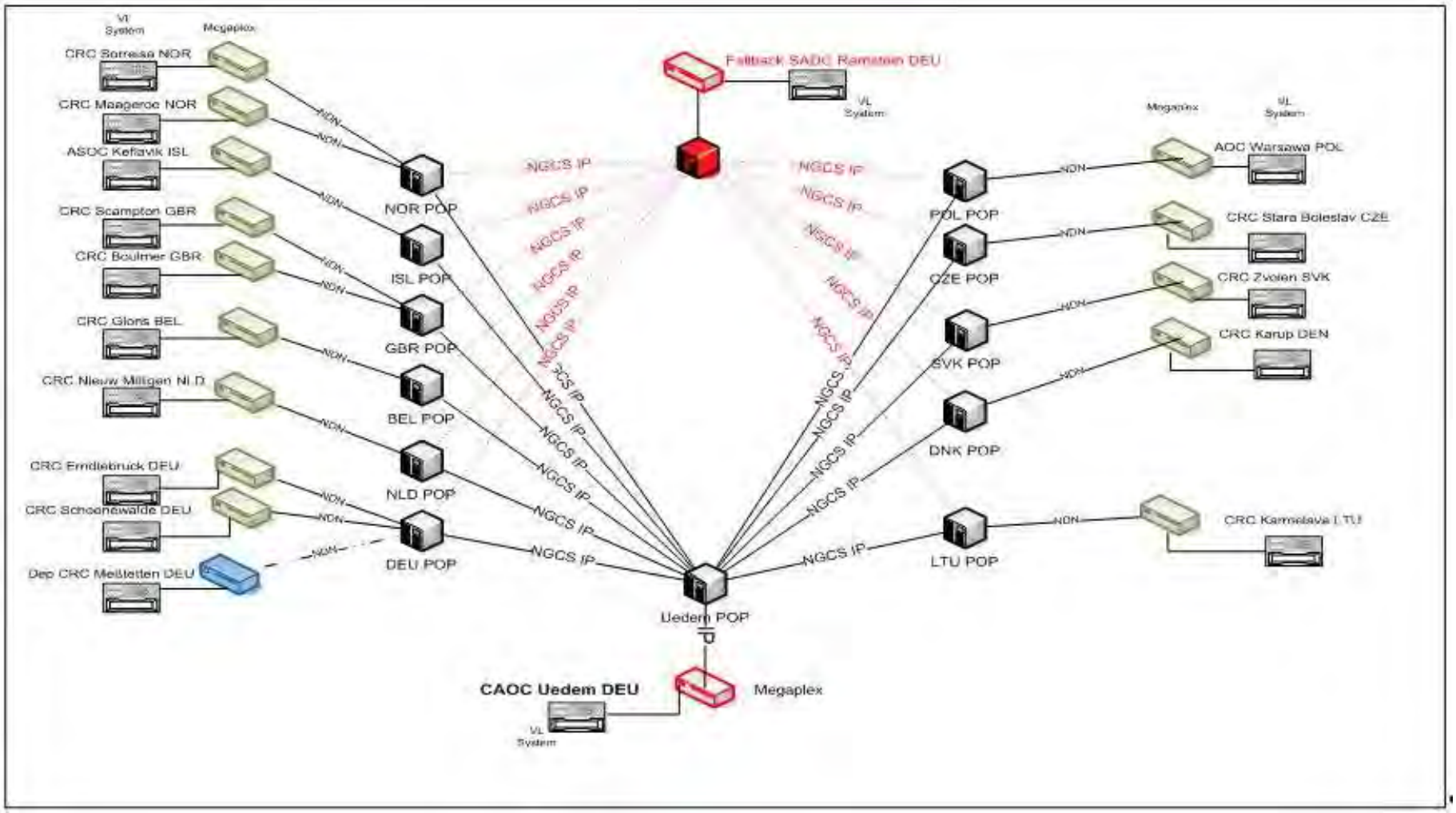
NCI Agency, Book II, Part 4, Section 1, Annex D

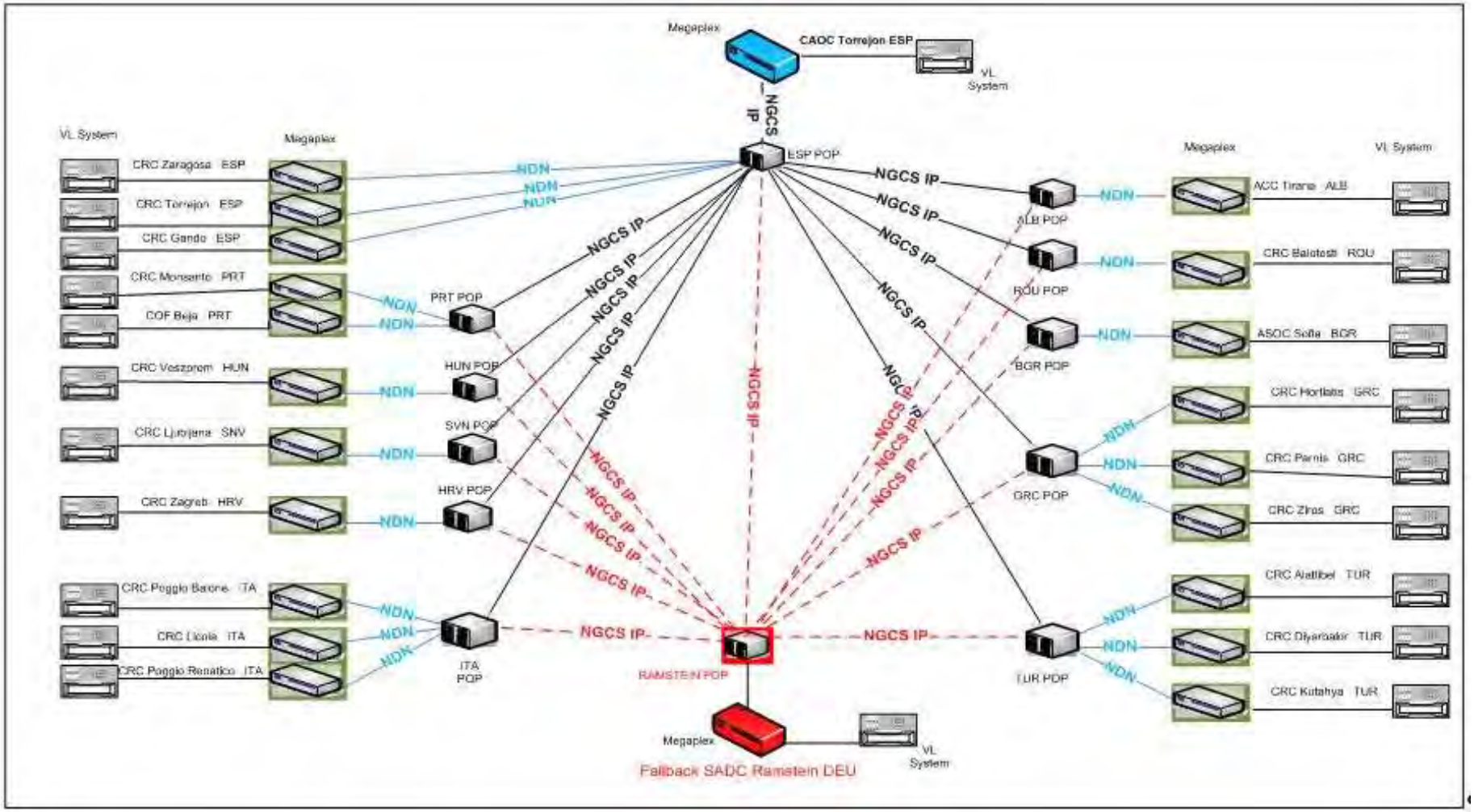
Rev. -, 30.05.2013

1. The Table below provides as list of nations and locations where the UR 6A VL System project is to be implemented at the nominated NATO ground sites: **(Correct @ 30.05.2013)**

	Country	Site	Location	Comments
1	NATO/DEU	HQ Air Com (SADC)	Ramstein	
2	NATO/DEU	CAOC	Uedem	
3	NATO/ESP	CAOC	Torrejon	
4	NOR	CRC	Mågerø	
5	NOR	CRC	Sørreisa	
6	DNK	CRC	Karup	
7	GBR	CRC	Boulmer	
8	GBR	CRC	Scampton	
9	POL	AOC	Warszawa-Pyry	
10	BEL	CRC	Glons	
11	NLD	CRC	Nieuw Milligen	
12	DEU	CRC	Schönewalde	
13	DEU	CRC	Erndtebrück	
14	DEU	DCRC	Holzdorf	
15	CZE	CRC	Stará Boleslav	
16	LTU	CRC	Karmėlava	
17	ISL	CRC	Keflavik	
18	ITA	CRC	Poggio Renatico	
19	ITA	DCRC	Poggio Ballone/Bari Palese	
20	ITA	CRC	Licola	
21	GRC	CRC	Thessaloniki - HORTIATIS	
22	GRC	CRC	Athens - PARNIS	
23	GRC	CRC	Crete - ZIROS	
24	ESP	CRC	Madrid - TORREJON	
25	ESP	CRC	Madrid - ZARAGOSA	
26	ESP	CRC	Grand Canaria - GANDO	
27	TUR	CRC	Alatlibel - A	
28	TUR	CRC	Diyardakir	
29	TUR	CRC	Kutahya	
30	PRT	CRC	Monsanto - MONSANTO	
31	PRT	CRC	Paços de Ferreira - BEJA	
32	BGR	CRC	Plovdiv - SOFIA	
33	ROU	CRC	Balotesti	
34	HUN	CRC	Veszprém	
35	ALB	CRC	Tirana	
36	HRV	CRC	Podvornica (Zagreb)	
37	SVK	CRC	Zvolen	
38	SVN	CRC	Brnik (Ljubljana)	

FRENCH NATINAMDS SITES OPTIONAL TO INSTALLATION CONTRACT				
1	FRA	CRC	Cinq Mars La Pile	TBC
2	FRA	CRC	Mont De Marsan	TBC
3	FRA	CRC	Drachenbronn	TBC
4	FRA	CRC	Mont Lyon Verdun	TBC


VI System
Megaplex
CRC Sorrasa NOR
CRC Maageroe NOR
ASOC Keflavik ISL
CRC Scampton GBR
CRC Boulmer GBR
CRC Glons BEL
CRC Nieuw Milligen NLD
CRC Emdlebruck DEU
CRC Schoenewalde DEU
Dep CRC Meßtetten DEU
NOR POP
ISL POP
GBR POP
BEL POP
NLD POP
DEU POP
NON
Fallback SADC Ramstein DEU
VL System
NGCS IP
Uedem POP
CAOC Uedem DEU
Megaplex
VL System
POL POP
CZE POP
SVK POP
DNK POP
LTU POP
AOC Warszawa POL
CRC Stara Boleslav CZE
CRC Zvolen SVK
CRC Karup DEN
CRC Kamnolava LTU


Megaplex
CAOC Torrejon ESP
VL System
NGCS IP
ESP POP
VL System
Megaplex
CRC Zaragosa ESP
CRC Torrejon ESP
CRC Gando ESP
CRC Monsanto PRT
COF Beja PRT
CRC Veszprem HUN
CRC Ljubljana SNV
CRC Zagreb HRV
CRC Poggio Renatico ITA
NDN
PRT POP
HUN POP
SVN POP
HRV POP
ITA POP
NGCS IP
RAMSTEIN POP
Megaplex
VL System
Fallback SADC Ramstein DEU
ALB POP
ROU POP
BGR POP
GRC POP
TUR POP
ACC Tirana ALB
CRC Balotesti ROU
ASOC Sofia BGR
CRC Hortiatis GRC
CRC Parnis GRC
CRC Zitos GRC
CRC Alatibel TUR
CRC Diyarbakir TUR
CRC Kutahya TUR

NATO Communications and Information Agency

RFQ 13639

Statement of Work

for the Implementation of the

Enhancements to

NATO Integrated Air and Missile Defence System

Command and Control Communications

Part A – Voice Loop Communications

Test and Evaluation Master Plan (TEMP)

NCI Agency, Book II, Part 4, Section 1, Annex E

Intentionally Blank

ANNEX E – Purchaser Test and Evaluation Master Plan (TEMP)

REVISION SHEET

ECP No. Revision Date

INITIAL RELEASE – 30 May 2013

TABLE OF CONTENTS

1. PURPOSE OF THE DOCUMENT

(1) This Test and Evaluation Master Plan (TEMP) provides an overall description of the Test and Evaluation (T&E) processes which shall be implemented by the Contractor.

(2) The Contractor shall not deviate from this TEMP without obtaining written Purchaser approval.

(3) Definitions specific to this TEMP:

a. Where the VL Equipment Suite is identified for any testing activities this shall be interpreted to mean the VL equipment and all ancillary equipment, including Purchaser Furnished Property (PFP) equipment and interfaces at the selected installation sites;

b. The definition of the Purchaser Test Director may be interpreted as, Purchaser Test Director or his/her representative. The Contractor Test Director may be interpreted as Contractor Test Director or his/her representative;

2. TEST PROGRAMME SUMMARY

2.1. General

(1) The project shall use functional requirements based testing to prove that the product meets the functional requirements of the project.

(2) Test & Evaluation (T&E) shall verify that the delivered system complies with the requirements of the project Procurement Specification (PS).

(3) The T&E programme shall verify that each site installation meets the PS, during appropriate factory and site acceptance and site commissioning installation phases. Additionally, there will be an overall system load test to verify that the installed VL system meets the requirements of the PS and Operational test and Evaluation criteria detailed in the VCRI.

(4) The Contractor shall conduct formal tests in accordance with test plans and descriptions approved by the Purchaser and document the test results in approved Test Reports.

(5) The Purchaser reserves the right to approve or reject the Contractor's T&E, including test documentation, test procedures, test conduct, analyses performed, and test results.

(6) The Purchaser reserves the right to require additional testing and test documentation, for T&E clarification as deemed appropriate.

(7) To ensure repeatability of tests and control of the test environment, strict control of system configurations and test documentation shall be maintained by the Contractor.

(8) Testing will be managed by the application of previously proven NCI Agency and NATO processes.

{TETP}, {TETD}, {TETR}

2.2. Scope of Test

2.2.1. Test Phases

(1) The Testing approach to be utilized for this project shall encompass the following phases:

a. Factory Acceptance Testing (FAT) will be carried out at the contractor's facilities and shall test Hardware, Software and System Integration with PFP and communication interfaces.

b. Site Acceptance Testing (SAT) will be carried out at each site and shall test final Hardware, Software and System Integration with PFP and communication interfaces.

c. System Wide Testing will be carried out to verify the overall system delivers the capabilities and meets the requirements of the PS, including system Load Testing to verify overall system PS requirements.

d. Speciality Testing will occur to verify individual maintainability, Interface, System Load, Reliability and EMIC testing meets the PS.

2.2.2 Factory Acceptance Testing (FAT)

(1) FAT will occur during the Contractor's development phase to test if the designed technical solution meets the project PS. FAT will include elements of Hardware (HW), Software (SW), and system load and interface testing.

a. FAT will be performed at the Contractor's site;

b. It is performed to ensure that lower level component quality in terms of performance, reliability, maintainability and security requirements are met prior to proceeding to the site installations phase;

c. It is not intended that NCI Agency attend these tests unless a specific test risk is identified necessitating early test visibility, however the NCI Agency may monitor these informal activities to confirm the Quality Assurance (QA) stipulations in the contract are adhered to;

d. During this phase of testing, the Contractor shall identify to the purchaser all test risks identified;

(2) If the Contractor's VL technical solution is an adaptation of COTS SW or other in service capability, the Contractor may subject to the purchasers agreement, provide evidence based on compatibility and compliance to meet the requirements of the Project PS, subject to acceptable compliance with required PS and VCRI criteria.

2.2.3. Pre Site Acceptance Tests Activities and Installation Works

(1) The contractor may demonstrate readiness to begin site installations and PS compliance by purchaser inspection of an already installed capability, in use operationally, which has demonstrated the robustness required to meet the VL PS.

(2) The SAT test procedure shall be delivered to the Purchaser, for review at least 30 days prior to the planned commencement of SAT. The final version of the SAT procedures shall be delivered 5 days prior to the commencement of site installation.

(3) Planning and Scheduling of site requirements shall be coordinated with the Purchaser 30 Purchaser calendar days in advance of planned formal test activity.

2.2.4. Site Acceptance Testing (SAT)

(1) SAT is a NCI Agency formal activity which shall take place at each project nominated site. SAT shall be carried out at each site to ensure VL system performance meets the requirements of the PS. SAT will include but is not limited to, testing equipment interface connectivity and end to end voice communication capability between each CRC and parenting CAOC and Fallback SADC meets the requirements of the project PS. The purchaser provided VCRI will stipulate the FAT, SAT and System Wide test acceptance criteria.

(2) The Contractor will re-verify that the VL PS requirements have been met at each site as detailed in the purchaser's VCRI, which will detail the testing criteria to be met. The contractor will confirm during the SAT:

a. The Hardware installation has been completed correctly;

b. The performance of the installed VL equipment meets the PS requirements and VCRI;

c. The VL equipment shall not electronically interfere with other electronic equipment or NATO NGCS network and National Defence Network (NDN) lines, or other equipment already installed on site;

d. The installed system meets the site's operational communications requirements;

e. SAT testing of the VL shall be comprised of two stages:

(1) Hardware installation testing consisting of installed communication equipment testing internal site and external interfaces to PFP, NDN and NGCS functional interfaces.

(2) System Management Software testing with interface to subordinate VL elements prove complete system functionality;

f. The SAT shall include testing via an approved Contractor test tool with recording of both transmitted and received data and any other data as agreed;

g. Upon successful completion of each site SAT, the Contractor shall deliver to the purchased and site CIS Command Group, all site referenced as installed drawings, circuit diagrams, communications circuit requests, safety and security certificates and itemized list, including individual serial numbers of all installed major equipment's e.g. Server serial numbers etc and appropriate SW and HW Licence certificates relevant to each site installation.

{TETP}
{TETP}
{TETD}

2.2.5 System Wide Acceptance Testing

2.2.5.1 System Load Test

(1) The contractor shall conduct System Load testing following completion of site installations to verify that the net aggregate of installed VL system equipment meets the PS requirements for multiple users to use the VL system. Specific test criteria for VL Load testing are detailed in the purchasers VCRI.

(2) The Contractor shall recommend to the purchaser, a load test to measure the behaviour of the system with a selection of up to 150 users monitoring single and multiple VL channels, which validates the system's ability to function correctly to its specific loading capability.

(3) The load test shall be subject to the Purchasers approval.

(4) The Contractor shall complete the initial system Load Test during FAT and a final CAOC and SADC Fall back Operational Load Test following for the Northern Region and Southern Region VL system domains.

2.2.6. Speciality Testing

2.2.6.1. Maintainability

(1) The Contractor shall conduct the System Maintainability tests and analysis in accordance with MIL-STD-470, Task 301 at each Purchaser designated site.

(2) The Contractor shall submit a Test Plan in accordance with MIL-STD-471A. The Contractor shall apply the test methods and analysis techniques as identified in Appendix B of MIL-STD- 471A. The test shall provide a 90% confidence that the specified maintainability requirements have been achieved.

(4) The Contractor shall ensure that the maintainability tests and analyses address:

a. Completeness of maintainer training to perform the HL1/HL2 maintainability tasks;
b. The system diagnostic capability, fault detection and isolation;
c. The accuracy of procedures, Mean Time to Repair (MTTR) times, support equipment and Hardware corrective maintenance/support tasks.

{TETP}

2.2.6.2. Interface Testing

(1) The Contractor shall conduct VL system Interface testing at each site prior to and after the installation of any VL system components to verify that the installed VL system site installed equipment meets the PS and VCRI criteria.

2.2.6.3. Reliability Testing

(1) The Contractor shall conduct individual component and system VL Reliability testing against VCRI criteria to verify the installed VL system meets the requirements of the PS.

(2) The Contractor shall perform reliability testing on the VL system at a Purchaser designated CAOC and CRC type sites.

2.2.6.4. Electromagnetic Interference Capacity (EMIC) Testing

(1) The Contractor shall conduct EMIC testing to verify that the VL system components do not interfere with already installed national or NATO equipment installations. EMIC Testing criteria will be detailed in the purchasers VCRI.

2.2.6.5. Security Testing

(1) The Purchaser shall conduct Security Testing of the VL system components prior to and after installation to verify the installed VL system and system components do not jeopardize NATO security requirements. The purchaser shall provide to the contractor, details of the mandated NATO security and accreditation requirements that are included in the PS and VCRI.

(2) A Vulnerability Test (VT) will be planned and organised by NCI Agency and conducted by the NATO Computer Incident Response Capability (NCIRC) at each Ground Site during site testing.

2.3 Test Strategy

(1) As much in depth functional testing as possible shall be conducted in-plant during the FAT testing phase.

(2) Each test phase shall be decomposed into test events dedicated to formal testing, themselves decomposed into test sessions.

(3) The Contractor shall maintain and update all test data and test related data in a database repository.

(4) Test data and test related data held within the repository database shall include, but is not limited to:

a. Requirements and their verification status;

b. Test Documentation as required per this document and their approval status;
c. Full traceability between Requirements, Test Cases, and Requirement results in executed and non-executed test cases, Test Case Results, Engineering Change Proposals (ECP), Engineering Change Requests (ECR);
d. Test Cases and their execution and result status;
e. Test Artefacts, Scenarios, Scripts, Evidences;
f. Current Status of testing and all outstanding problems and actions shall be documented;
g. Hardware and Software configuration shall be specified and documented.

(5) Upon request of the Purchaser, the Contractor shall deliver the complete data set from the repository database within 24 hours after the request using COTS Microsoft Office applications products.

2.3.1 Interim Approval to Operate (IATO)

(1) The Purchaser shall provide an IATO for the VL system upon successful completion of all system, site and load testing.

{TETP}

2.4 Contractor Test and Evaluation Team Organisation

(1) The Contractor shall designate one person to act as the overall Test Director for all formal activities.

(2) The Contractor shall allocate suitably qualified personnel to form a T&E team for this Project.

(3) T&E team members shall be independent of the system development organisation and shall not be involved in the development or integration activities.

(4) The Contractor shall provide details of the T&E organisation, along with specific details of the team to be used on the Project.

2.5. Test Execution Process: Sequence of Events

(1) The Contractor shall adhere to the test execution process as detailed in this paragraph to ensure control of TD validation, dry-runs, formal test conduct and post-test analysis.

(2) The Contractor shall confirm that all planned contractual requirements have been met during Test Readiness Reviews (TRR).

(3) In order to ensure that subcontractors follow a similar process, these rules shall derivate to each subcontractor.

2.5.1. Test Description Validation

(1) This activity shall be the responsibility of the Contractor T&E and QA teams.

(2) The purpose of TD validation is to ensure that system tests can be initiated within the scheduled timescales. The main goals of TD Validation are to:

a. Determine the correctness of TD in terms of requirement coverage and test case/step sequencing;
b. Determine the correctness of the test case allocations in the Validation Cross Reference Index (VCRI);
c. Identify anomalies when refining the test procedures;
d. Refine the detailed test schedule;
e. Initialize the Test Logs, which will form part of the Test Reports.

(3) At the end of each TD validation phase:

a. The Contractor shall adjust the VCRI to reflect the actual coverage by the TD;
b. Contractor QA shall review the updated TD and VCRI to assess if the documents are ready for release to the Purchaser;

{TETD}
{TETR}

(4) Once Contractor QA concurs with Contractor internal approval of the validated TD and VCRI, the Contractor shall issue the validated TD and VCRI to the Purchaser, where it will enter a 30 day review cycle. After the review cycle, a period of 15 days is reserved for comment resolution and inclusion into the documents.

2.5.2 Dry-Runs

(1) The Contractor shall conduct dry-runs to ensure that the VL system to be tested during the formal testing phase is fully ready to be tested.

(2) This activity is informal and shall be the responsibility of the Contractor T&E and QA Teams.

(3) The Contractor shall invite the Purchaser to participate in the kick-off meeting and the dry-runs in order to approve modifications, if necessary of the test descriptions and/or related data.

2.5.2.1 Dry-Run Kick-Off

(1) Dry-runs shall be initiated with a kick-off meeting.

(2) Items reviewed during the kick-off shall be the same as those for the TRR. This is to allow for an action plan in case criteria for a successful TRR have not yet been met.

(3) The Contractor QA shall attend the kick-off meeting to verify and assure that criteria for the prospective TRR are met.

(4) The Contractor QA shall ensure that all test artefacts (e.g. test description, simulation files, and adaptation files) related to the test event are placed under configuration control, frozen and appropriate records maintained that ensure the total control of the test environment.

2.5.2.2 Dry-Run Conduct

(1) Dry-runs shall be performed with a controlled system configuration and represent a rehearsal for formal testing.

(2) The Contractor QA shall ensure that TDs are correctly redlined in accordance with the Contractor internal control and management process and the test logs maintained. These test logs and the TRR checklist shall be used to determine readiness of the system for formal testing and are inputs for the Test Readiness Review (TRR).

{TETD}
{TETRRD}

2.5.2.3. Dry-Run Wash-up

(1) At the end of the dry-run, the Contractor test team shall hold a wash-up meeting to summarise the events, progress and any problems identified.

(2) The Contractor test team shall summarise each dry-run event in Meeting Minutes.

(3) The Meeting Minutes shall include inputs as directed by the Purchaser and be signed by the Contractor Test Director.

(4) The Meeting Minutes shall be included in the Test Report.
{TETR}

2.5.3. Test Order and Test Schedule

(1) The Contractor Test Director shall notify the Purchaser Test Director and the NCI Agency Point of Contact (POC) plus any stakeholders of an intention to conduct any test, at least 21 days in advance.

(2) For each Formal Test Event (FTE), the Contractor Test Director shall announce a TRR and issue a Formal Test Order (FTO).

(3) The TO shall be part of the TRR Documentation (TRRD) suite.

(4) The Contractor shall announce any Formal Test activity that takes place outside a Test Event (e.g. re-tests, deferred tests etc.), via an FTO.
{TETRRD}

2.5.4. Test Preparation

(1) Test preparation shall be the responsibility of the Contractor test team in charge of the test cases to be executed.

(2) The Purchaser shall be invited to attend the test preparation. The Purchaser may be represented at any of the SAT by organic CIS personnel from that location, representing the Purchaser.

(3) The purpose of test preparation is to set-up the test environment required for test execution as described in the test description.

(4) Test preparation shall verify that:

a. The correct versions of any HW/SW are installed;
b. The required equipment including test tools are available for use;
c. The specific adaptation files, patches, recording media are available.
d. All required test documentation is available in case for inspection;
e. All actions indicated in the test description related to test preparation are properly executed.

{TETD}

2.5.4.1 Test Execution

(1) Test execution shall involve completing test steps to confirm functional capability of the VL system at each site in accordance with the test description and making note of any encountered observations, potential problems.

(2) The Contractor test team initiates the formal test log and during formal testing lead the test execution.

(3) The Contractor QA shall ensure the TD is correctly redlined in accordance with the Contractor CM process and the test logs maintained.

(4) During test execution, each participant (Contractor and Purchaser or representative) shall note their observations or potential problems (including redlines to the test procedures) either directly on their copy of the test descriptions or on their individual test logs.

(5) The Contractor test team shall use one hardcopy of the test description to indicate/record pass/fail status of executed steps, deviations, and major/minor redlines.

(6) The as-run version shall be included in the test report.

(7) The Purchaser shall decide approval of the recommended Contractor actions on a case-by-case basis; as such conditions cannot be pre-determined.

{TETD}
{TETR}

2.5.4.2 Post Test Execution

(1) At the conclusion of test case execution, the Contractor test team shall:

a. Ensure that all data recordings and any other test output materials are collected;
b. If necessary, restore the operational system configurations to the baseline versions;

c. Removes any patches as required.

2.5.4.3. Initial Test Debriefing

(1) At the end of each test session, the Contractor Test team shall hold an initial test debriefing.

(2) This debriefing shall be preceded by a test “wash-up” meeting to summarise the events, progress and problems encountered during the testing session.

(3) The Contractor Test Conductor shall debrief the test results and solicit comments, observations, and any questions concerning the test conduct.

(4) This debriefing shall provide the following for each test case:

a. The test case execution status;
b. The test case result status;
c. A summary of any deviations, anomalies or observations;
d. Identification and generation of Defect or Deficiency Reports;
e. Identification of the requirements verification status;
f. For any questions/comments/analysis or potential discrepancies that could not be answered during the debriefing an observation will be raised by the Purchaser;
g. Any observations will be linked by the Contractor to a Defect or Deficiency or an Action Item or rejected and processed accordingly;
h. Identification of potential requirements for re-tests or rectification tasks/works.

(5) Where stakeholders agree the test cases have passed, or passed with a conditional status, this initial debriefing shall be considered as the final debriefing.

(6) If detailed analysis, more tests or re-tests are required, the result of this interim debriefing shall constitute an input for status assessment as part of the final debriefing.

(7) The Contractor Test team shall summarise the Initial Test Debriefing (ITD) in the related Meeting Minutes which may include appropriate inputs by the Purchaser.

(8) The ITD shall be concluded by the Meeting Minutes sign-off by the Purchaser and Contractor Test Director.

(9) The Initial Test Debriefing Meeting Minutes shall be included in the Test Report.
{TETR}

2.5.4.4 Initial Post Test Analysis

(1) The Contractor Test team shall analyse the recorded data as required by the test description and all questions and comments not answered during the initial debriefing.

(2) This analysis shall be carried out to comply with the test schedule.

(3) The Contractor shall supply any recorded test data to the Purchaser upon request.
{TETR}

2.5.4.5. Final Post Test Analysis

(1) Should the Initial Post Test Analysis (IPTA) require more time than allocated within the test schedule, the IPTA period shall be extended after the final debriefing into a Final Post Test Analysis (FPTA) period.

(2) The FPTA period shall provide Contractor test team provisional conclusions within 10 days of the commencement of FPTA.
(3) The Contractor shall provide the final conclusions in the Test Report.
{TETR}

2.5.4.6. Re-Verification Provisions

(1) If test results do not meet test acceptance criteria, the Contractor Test Director shall make recommendations concerning the status of the test event to the Purchaser Test Director for approval.

(2) In case there is a failed or aborted test event, the Contractor Test Director shall evaluate the reasons and propose corrective actions to the Purchaser Test Director prior to any rescheduling.

(3) Any rescheduling shall be subject to Purchaser's approval.
{TETP}

2.5.4.7 Test Re-Run

(1) Whenever problems occur during the conduct of formal tests the Purchaser test representative shall decide on the need for re-testing and inform the Contractor Test Conductor accordingly.

(2) If a mutual agreement cannot be achieved, written position statements shall be prepared and forwarded to Contractor and Purchaser Programme Management for resolution.

(3) Retest is only required for failed or incomplete verification of requirements.

(4) A critical test error shall require a complete retest of the test procedure. The Contractor and Purchaser Test Director shall mutually agree upon a complete test rerun re-scheduling.
{TETR}

2.5.4.8 Final Test Debriefing - Exit Criteria

(1) A final debriefing shall be held after all iterations or re-tests have been completed, the test log is updated and both the Purchaser and Contractor Test Director agree that all testing is complete, issues identified, and an action plan is agreed.

(2) The purpose of this final debriefing is:

a. To assess the test results and all requirements that have not been verified via the testing sessions. These shall be reviewed and a related action plan agreed;
b. To summarise the test results and any remaining anomalies;
c. On Purchaser Test Director approval any non-satisfied tested requirements shall be reallocated to a subsequent test event or re-run;
d. To finalise agreement on the action plan to address any remaining open items and associated test re-runs;
e. To update the official test log to document the results of the final debriefing;
f. Final Test Debriefing Meeting Minutes are prepared and signed off at this time by the Purchaser and Contractor Test Director.

(3) The signed final debriefing Meeting Minutes and the official test log provide the certification that the test event is completed.

(4) The Final Test Debriefing Meeting Minutes shall be included in the Test Report.
{TETR}

2.5.5. Certification of Test

(1) If test results meet test criteria, the Purchaser will complete and sign a Certificate of Test (COT), within 15 days after approval of the final test report.

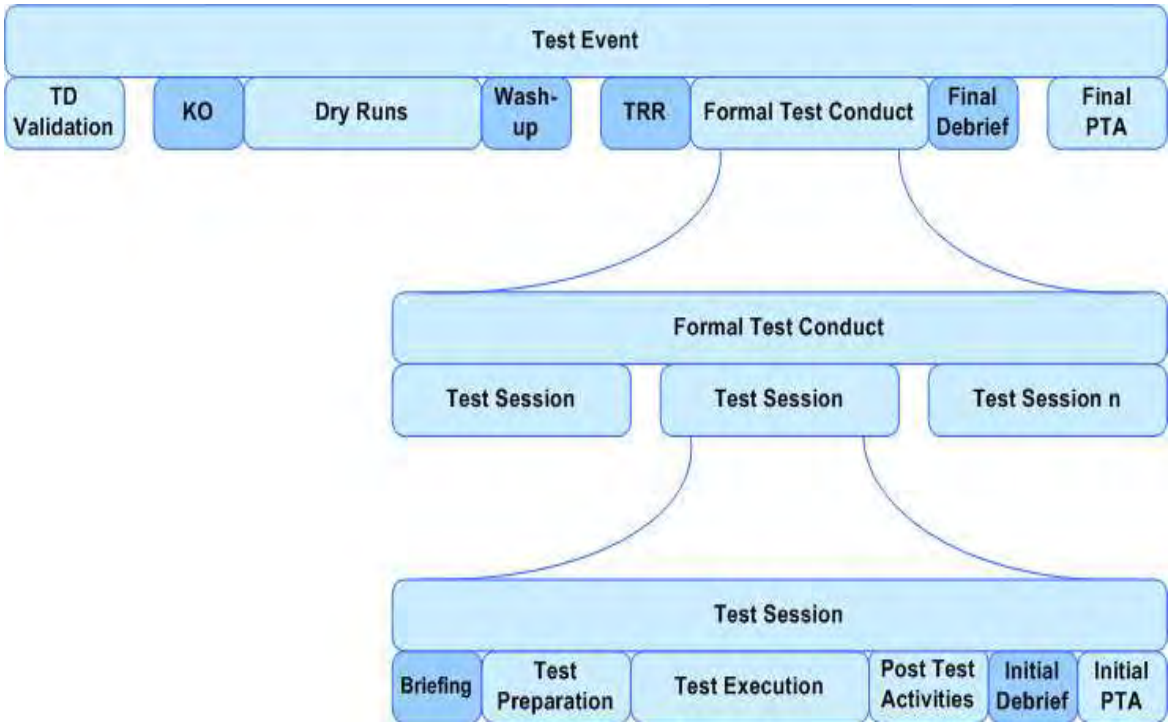


Fig 1. Test Execution Process

2.6. Test Documentation

2.6.1 CDRL

(1) The Purchaser shall deliver as Critical Design Requirements List (CDRL) detailing all the project Functional, programmatic and project requirements. The Purchasers VCRI will detail the specific functional and system requirements and test criteria which shall be tested during project implementation. The Contractor will also need to demonstrate as part of the system Test for the VL capability, that Programmatic, System Engineering, ILS CM and QA requirements are also met.

2.6.2. Test Plan

(1) The contractor shall produce a separate Test Plan (TP) for CRC VL systems and CAOC/Air Com Ramstein VL and System Management systems. Individual TPs for CRC are to be tailored to adapt for national infrastructure requirements and National Defence Network (NDN) connectivity.

(2) The Test Plan shall specify/describe the scope, approach, resources, and schedule of intended testing activities.

{TETP}

2.6.3. Test Report

(1) Following each test event conclusion, the Contractor shall prepare and deliver Test Reports (TR) in accordance with the TEMP. The Contractor test team shall be responsible for collecting the results of each test and generating and delivering the Test Reports.

(2) The TR shall describe the conduct and results of testing and any analysis performed to verify system requirements.

(3) The Contractor shall provide every document that is referred to in the TR unless these are Purchaser supplied.

{TETR}

2.6.4. Verification Cross Reference Index (VCRI)

(1) The Purchaser shall provide to the Contractor a VCRI for validation and test criteria for use during the Test Phases detailed in this TEMP.

(2) The Contractor shall not change the values of the initial VCRI unless approved by the Purchaser.

(3) The VCRI shall define the allocations of the system requirements with their test attributes and provide traceability to the test cases with which the system requirements will be verified.

(4) The Contractor shall ensure the following life cycle for the VCRI:

a. The Purchaser will provide the baseline VCRI to the Contractor at the start of the bidding process.
b. The Contractor shall incorporate all Purchaser comments and redlines resulting from the dry-runs, and as agreed by the purchaser, deliver an updated final VCRI, as part of the TRR documentation;
c. All incorporated changes to the final VCRI shall be subject to Purchaser approval during the TRR, and be subject to formal incorporation into the project CDRL;
d. During Test Execution, the Contractor shall maintain a master hard copy of the VCRI which is to include all hand-written comments and redlines;
e. After formal test execution, the Contractor shall deliver this redlined final VCRI as part of the test report;
f. The Contractor shall deliver a revised version of the VCRI CDRL, including all the Purchaser comments and redlines from the dry-runs and the formal test execution not later than 30 days after the end of testing.

{TEVCRI}

2.7. Tracking Processes

(1) The Contractor shall have a process established for observation tracking to document potential non-conformances to Project requirements.

(2) The Contractor shall have a process established for defect & deficiency tracking to document identified non-conformances to the requirements.

(3) To support both processes, the Contractor shall use a common tool that is considered industry standard.

(4) The Contractor shall have a process established for Action Item (AI) tracking.

2.7.1. Observation Tracking

(1) Observations made by Purchaser personnel during formal test events shall be reviewed jointly with the Contractor test team during the initial test debriefing. The purpose of this is to:

a. Clarify possible operator misunderstandings;
b. Identify duplication of previously reported problems;
c. Identify requirements for further investigation and/or analysis;
d. Identify potential Hardware, Software or system problems.

(2) The Purchaser shall document each observation and provide them to the Contractor within 3 days after the test event or within 3 days after availability of reduced data.

(3) The Purchaser shall document observations made outside formal test events and provide them to the Contractor as soon as possible for tracking and action.

(4) The Contractor shall provide a disposition for each observation within 15 days after its creation.

(5) In case observations may have an impact on the execution or results of a formal test event, the Contractor shall include a disposition for each observation in the applicable TRRD.
{TETRRD}

(6) The Contractor's disposition shall be subject to approval by the Purchaser. If an agreement cannot be reached between the Contractor Test Director and the Purchaser Test Director, written position statements shall be prepared and forwarded to Contractor and Purchaser Program Management.

(7) If all parties reach consensus on any observation generated during test execution, this observation may be closed and be further tracked as a Defect or Deficiency.

2.7.2. Defect and Deficiency Tracking

(1) The Contractor shall define Defects and Deficiencies as follows:

a. System problem: The system does not operate according to supporting documentation and the documentation is correct;
b. Documentation problem: The system does not operate according to supporting documentation but the system operation is correct;
c. Design problem: The system operates according to supporting documentation but a design deficiency exists. The design deficiency may not always result in a directly observable operation symptom but possesses the potential for creating further problems.

(2) Criticalities shall be allocated to all defects as defined in Table 2.9.2.-1 in accordance with MILSTD- 498. This table also shows mapping between defects, deficiencies and their criticality.

MIL-STD-498 Priority	Applies if a Problem could:	PTR Criticality
1	a. Prevent the accomplishment of an operational or mission essential capability.	Critical – Defect
	b. Jeopardize safety, security or other requirement designated “Critical”.	
2	a. Adversely affect the accomplishment of an operational or mission essential capability and no work-around solution 1 is known.	High – Defect
	b. Adversely affect technical, cost or schedule risks to the project or to life cycle support of the system and no work around is known.	
3	a. Adversely affect the accomplishment of an operational or mission essential capability but a work-around solution is known.	Medium – Deficiency
	b. Adversely affect technical, cost or schedule risks to the project or to life cycle support of the system but a work around is known.	
4	a. Result in user/operator inconvenience or annoyance but does not affect required operational or mission essential capability.	Low - Deficiency
	b. Result in inconvenience or annoyance for development or support personnel, but does not prevent the accomplishment of those responsibilities.	
5	Any other effect.	Enhancement

2.7.3. Action Item Tracking

(1) The Contractor shall ensure distribution of Action Items.

(2) Action Items shall have due dates.

2.8. Test Results Assessment

(1) After a test case has been executed, the test case Execution Status, the test case Result Status and requirements Verification Status shall be determined in accordance with the paragraphs below.

(2) Test Case Execution - Assessment Rules a test case shall have one of the following Execution Status:

a. "Not Executed": Initial status at Test Event beginning for all test cases to be run. At the end of the test event, this status does not exist;

b. "Deferred": Status agreed during the TRR. Test case was initially allocated to the test event but its execution is deferred to another test event;
c. "Executed": The test case was actually executed.

(3) Test Case Result - Assessment Rules: The Purchaser Test Director shall, depending on the test Case Execution Status, assign one of the following Result Status:

a. "No Result": The test case Execution Status is either Not Executed or Deferred;
b. "Failed": The test case Execution Status is "Executed" but at least one Critical and/or High Observation and/or Defect or Deficiency has been raised during test case execution. The Purchaser Test Director may assign the Test Result Status as "Failed", considering the number of Medium and/or Low Observations and/or Defects or Deficiencies; the test case needs to be re-executed;
c. "Passed with Conditions" - The test case Execution Status is executed but a least one medium and/or low observation and/or Defect or Deficiency has been raised, this observation or Defect or Deficiency is the result status "Condition" of the test. The Result status can only be changed to 'Passed' after the imposed "Condition" is lifted. The test case may not need to be re-executed;
d. "Passed" - If during test case execution only observations and/or deficiencies with priority of no effects or defects or deficiencies (MIL-STD-498 cat 4.b & 5) or actions items and/or redlines are of minimal impact.

2.8.1. Requirement Verification: Assessment Rules

(1) After execution of a test case, the Verification Status of a requirement allocated to this specific test case shall be determined as follows:

a. "Not Verified": The Test Case Result Status is "Failed";
b. "Verified": The Test Case Result Status is "Passed" or "Passed with Conditions".

(2) The Overall Requirement Verification status shall be as follows:

a. "Not Verified": No testing of the requirement has occurred or the tests that were conducted had the Test Case Result Status of "Failed";
b. "Partially Verified": At least one test case to which the requirement is allocated has the Test Case Result Status of "Passed" or "Passed with Conditions";
c. "Verified": Requirement verified for all the test cases and all the test events.

2.9. Test Classification

(1) The Test Classification defines the formality level of the test event, which is defined as follows:

a. "Formal": The Contractor shall conduct formal tests in accordance with the Purchaser approved TP and TD;

i. The Contractor shall document the results of the tests in Test Reports (TR), subject to Purchaser approval.

b. "Informal": The Contractor shall conduct informal tests throughout the system development;

i. The Contractor shall notify the Purchaser of these tests and the Purchaser shall be allowed to observe the tests; where observe means attend the tests, but for information only.

{TETP}
(TETD}
{TETR}

2.10. Test and Evaluation Methods

(1) T&E methods of requirement verification used in this document are Inspection, Analysis Test or Demonstration as defined below. The Contractor shall use these methods throughout T&E.

(2) The word “test” is used in a general sense to cover verification activity whatever the method is. This is also the case in this document, unless where explicitly stated that “test” refers to a method of verification.

2.10.1. Inspection

(1) Inspection is defined as a visual method of verification conducted in a formal and disciplined manner to determine whether a specification requirement (for either Software, Hardware or the system) is met, by comparing the equipment, design or documentation against the original requirements.

(2) Typical products subjected to inspection are Software and its documentation, Hardware products, test plans and test cases. Inspection is conducted by experts in product design who are not directly related to the development of the product being inspected.

(3) Software logic inspections are conducted on selected test cases.

(4) Inspection of Hardware may require moving, turning, or partially disassembling the item to aid visual access.

(5) Inspection may incorporate qualification by equivalence for Hardware testing only. Qualification by equivalence is defined as the use of existing evidence from tests previously conducted or previous formal certification to verify compliance with the specified requirements. When the use of evidence is accepted by the Purchaser for requirements, no further test and evaluation activities will be required for that specific requirement.

2.10.2. Analysis

(1) Analysis is defined as the achievement of a technical evaluation of equations, charts, simulations and abstract models, data reduction and/or representative data. It is used where other methods are either not cost effective or not practical. The techniques vary depending on the functionality or performance to be verified.

2.10.3. Test

(1) Test is defined as the process whereby performance characteristics are quantitatively measured during or after the application of real or simulated functional and/or environmental stimuli, often a sufficient number of times to provide a statistical level of confidence in the results. Test also encompasses regression testing, the rerunning of test cases that have previously been executed correctly to detect errors created during later Software correction or modifications. The analysis of data derived from a test is an integral part of the test activity and may involve automated data reduction to produce the necessary results. Two basic test approaches are black box and white box testing.

(2) In practice, these approaches are used to complement each other because they tend to detect different classes of errors. Black box techniques are useful for finding incorrect or missing functions, interface errors, errors in data structure, performance errors and initialisation and termination errors. Black box techniques miss many other errors because they ignore important properties of items that are due to design and implementation factors and incomplete requirement descriptions. White box testing focuses on such errors.

APPENDIX A - BIBLIOGRAPHY

1. APPLICABLE DOCUMENTS

1.1. Standards

Document Number Title	Rev	Date
MIL-STD-781 MILITARY STANDARD Reliability testing for engineering, development qualification, and production.	**D**	17-Oct-86
MIL-STD-470 Maintainability Programme for System and Equipment	**B**	30-May-89
MIL-STD-471 Maintainability Verification/Demonstration/Evaluation	**A**	27-Mar-73
MIL-STD-498 Software Development and Documentation		05-Dec-94
STANAG 4370 Environmental Qualification		15-Feb-08

- Table A.1.1.-1 MIL-Standards

APPENDIX B – POINTS OF CONTACT

(1) For all information concerning this T&E Document and test issues, please contact:

a. Contractor Point of contact:
TBD

b. Purchaser Point of contact:

NATO Communications & Information Agency
Boulevard Leopold III
1110 Brussels, Belgium
Attn: Ms. Veronica Reynosa
Contracting
Tel. +32.2.707.8499
Email: Veronica.Reynosa@ncia.nato.int

Or

Mr. Jean-Luc Guellec
Principal Contracting Officer
Tel. +32.2.707.8303
E-mail: JeanLuc.Guellec@ncia.nato.int

c. External Agencies:
TBD

NATO Communications and Information Agency

RFQ-13639-ACCS

Statement of Work

for the Implementation of the

Enhancements to
NATO Integrated Air and Missile Defence System
Command and Control Communications

Voice Loop Communications

Configuration Management Requirements Document

NCI Agency, Book II, Part 4, Section 1, Annex F

This Page Intentionally Left Blank.

REVISION SHEET

ECP No.	Revision	Date
INITIAL RELEASE	-	30.05.2013

This Page Intentionally Left Blank.

TABLE OF CONTENTS

1. PURPOSE 1

2. INTRODUCTION 1
2.1. Definitions and Abbreviations 1
2.2. Hardware/Software 1

3. SCOPE 1

4. RELATIONSHIP WITH OVERALL NATO Air C2 Systems and ACCS CM PLAN. 1

5. PURCHASER CM PHILOSOPHY 1

6. PURCHASER CM ORGANISATION 1

7. CONFIGURATION MANAGEMENT ADMINISTRATION 2
7.1. Contractor's Configuration Management Plan 2
7.2. Organisation and Personnel 2

9. CM IMPLEMENTATION 3
9.1. Configuration Identification and Documentation 3
9.1.1. Purpose of Configuration Identification and Documentation 3
9.1.2. Task of Configuration Identification and Documentation 3
9.1.3. Configuration Item Selection 4
9.1.4. Configuration Baselines 5
9.1.5. Configuration Identifiers 9
9.1.6. Product Structure 14
9.1.7. Interface Management 14
9.2. Configuration Control 14
9.2.1. Requirements for Engineering Change Proposals (ECPs) 15
9.2.2. Engineering Change Process 15
9.2.3. Administrative Requirements 16
9.2.4. ECP Authorisation 17
9.2.5. Requirements for Requests for Deviation / Waivers 18
9.2.6. Request for Deviation/Waiver Procedure 18
9.2.7. Requirements for Contract Changes 19
9.2.8. Parts Substitutions 19
9.2.9. Requirements for Notices of Revision 19
9.2.10. Problem/Change Reports for Software 19
9.2.11. Engineering Release and Correlation of Manufactured Products 20
9.2.12. Requirements for Engineering Release Records 20
9.3. Configuration Status Accounting 21
9.3.1. Purpose of Configuration Status Accounting 21
9.3.2. Configuration Status Accounting Requirements 21
9.3.3. Retention of Historical Data Base 22
9.3.4. Subcontractors 22
9.3.5. Configuration Status Accounting Data Elements 23
9.3.7. Configuration Status Accounting Analysis Requirements 23
9.3.8 CM Data Availability 23
9.4. Configuration Verifications and Audits 24

9.4.1. Contractor Requirements 24
9.4.2. Functional Configuration Audit 25
9.4.3. Physical Configuration Audit 25
10. TECHNICAL REVIEWS 26
10.1. Technical Reviews 26
11. APPLICABLE DOCUMENTS 26
APPENDIX 1 INTERCHANGEABILITY AND SUBSTITUTION 27
1. INTERCHANGEABILITY AND SUBSTITUTION 27
2. DEFINITIONS 27
2.1. Interchangeable Item 27
2.2. Replacement Item 27
2.3. Substitute Item 27
3. DISTINCTIONS 27
4. PHRASE CODES 28
APPENDIX 2 NUMBERING AND NAMING SCHEME 29
1. CI IDENTIFICATION NUMBERING SCHEME 29
2. CI AND DOCUMENTATION NAMING CONVENTION 29
3. ECP NUMBERING 29
4. NOR NUMBERING 29
5. ERR NUMBERING 29
6. ECR NUMBERING 29
7. DEVIATIONS/WAIVER NUMBERING 29
8. PTR NUMBERING 30
9. REQUIREMENT NUMBERING 30
9.1. A-Level Requirements 30
9.2. B-Level Requirements 30
9.3. C-Level Requirements 30
9.4. Identification of Changes to Requirements 30
9.5. Unique Identification of Items 30
9.6. Interface Numbering 30

This Page Intentionally Left Blank.

1. PURPOSE

(1) The purpose of this Configuration Management Requirements Document (CMRD) is to define how NATO and specifically the NATO Communications and Information Agency (NCI Agency) Configuration Management (CM) policy is to be implemented by the Contractor for the legacy NATINADS Voice Loop UR6A and UR related legacy projects or for projects in support of NATINADS.

(2) This CMRD identifies and defines the CM requirements for the Urgent Requirement 6A Voice Loop (VL) Project to be performed by the Contractor and implemented in line with the contract.

2. INTRODUCTION

2.1. Definitions and Abbreviations

(1) The definitions and abbreviations used in this CMRD are contained in STANAG 4427 ACMP-6.

2.2. Hardware/Software

(1) CM requirements for hardware and software have been included in this CMRD. Where requirements are common to hardware and software items, they are shown as requirements for Configuration Items (CI). Where requirements are not common to all item types, they are shown as requirements for Hardware Configuration Items (HWCI) and Computer Software Configuration Item (CSCI), as appropriate.

3. SCOPE

(1) This CMRD defines the CM policy and procedures to be imposed on all Contractors developing, producing and maintaining Voice Loop Project Material or material of other related projects in support of NATINADS.

(2) CM procedures specific and internal to the individual territorial host nations or any NATO body outside NCIA are not addressed.

(3) This CMRD explains the approach to be used to implement all CM requirements. It also provides sufficient guidance for accomplishing the CM activities.

(4) Whenever specific processes for Software CM are required, they are covered in this document.

4. RELATIONSHIP WITH OVERALL NCIA Air C2 Systems and ACCS CM PLAN

(1) The CM requirements outlined in this document are consistent with the policy described in the NATO ACCS CM Plan.

5. PURCHASER CM PHILOSOPHY

(1) The fundamental rationale for CM is to ensure that a disciplined and coordinated approach is employed in controlling Material and their respective processes to minimise the operational, technical, cost and schedule risks encountered during acquisition, operation and maintenance. It is fundamental to CM philosophy that for any system there should be only one body exercising overall authority over material.

6. PURCHASER CM ORGANISATION

(1) The CM organisation is in the process of being transformed to take a lifecycle approach to CM.

(2) CM responsibilities are defined under the Charter of the NATO Communications and Information Organisation (NCIO), C-M(2012)0049.

7. CONFIGURATION MANAGEMENT ADMINISTRATION

7.1. Contractor's Configuration Management Plan

SOC001-a/- Contractor CM Plan (1)

The contractor shall refer to this CMRD, STANAG 4427 and STANAG 4159 to develop the Contractor Configuration Management Plan (CMP) in accordance with the specified requirements of Annex A - System Requirements Specification and Project Tasks.

{CMCCMP0}

SOC001-b/- Contractor CM Plan (2)

The Contractor shall produce a CMP which describes the processes, methods and procedures to be used to manage the functional and physical characteristics of the CI(s) for which they are responsible i.a.w. this CMRD, STANAG 4427 and STANAG 4159.

{CMCCMP0}

SOC002-a/- Tailoring of CM Requirements

The Contractor shall clearly identify in the Contractor CMP any intended tailoring of the Purchaser's CM requirements identified in this CMRD. Any such tailoring shall be fully described in the Contractor CMP.

The Contractor shall identify in their CMP any CMRD paragraphs and requirements which will not be complied with and mark these "N/A". Any N/A statements are subject to approval by the Purchaser

{CMCCMP0}

SOC004/- Application of Processes, Methods and Procedures

The Contractor CMP shall be consistent with Project specific needs and must describe the processes, methods and procedures to be used to manage the functional and physical characteristics of the assigned CI(s).

{CMCCMP0}

7.2. Organisation and Personnel

SOC005/- Contractor CM Organisation

The Contractor shall establish and maintain an effective CM organisation to implement the CM Project and manage the CM functions during all the Project lifecycle.

SOC006/- Contractor CM Personnel

CM personnel shall have sufficient responsibility, authority, organisational freedom and organisational independence to review and evaluate activities, identify problems and initiate or recommend corrective actions.

SOC007/- Restrictions on Contractor CM Personnel

In no case shall the CM personnel managing or performing CM functions be the same personnel responsible for performing other tasks that are reviewed by CM.

SOC008/- Definition of Assigned Duties

CM personnel shall have specific documented definitions of their assigned duties.

SOC009/- Appointment of CM Manager

The Contractor shall appoint a CM manager experienced in managing CM in Projects of a similar nature, both in terms of the products to be delivered and the level of technicality. The Contractor CM manager will be the direct interface with the Purchaser for all Contractor CM activities, organization and tasks.

9. CM IMPLEMENTATION

(1) The CM functions:

a. Configuration Identification and Documentation;

b. Configuration Control (CC);

c. Configuration Status Accounting (CSA); and

d. Configuration Verification and Audits (CVA).

9.1. Configuration Identification and Documentation

(1) Configuration identification includes the selection of Configuration Items (CIs), the determination of the types of configuration documentation required for each CI and the issuance of unique identifiers affixed to the CIs and to the technical documentation that comprises the CI's configuration documentation. Configuration Identification, therefore, is part of the design, development and in-service processes and this section deals with the requirements that are imposed on the Contractor.

9.1.1. Purpose of Configuration Identification and Documentation

(1) The purpose of the configuration identification programme is to incrementally establish and maintain a definitive basis for control and status accounting for all CIs throughout their life cycle.

9.1.2. Task of Configuration Identification and Documentation

SOC013-a/- Configuration Identification (1)

To accomplish Configuration Identification, i.a.w. STANAG 4427 ACMP 2 and the requirements of this CMRD, the Contractor shall for all Material:

a. Select CIs and component parts, subject to Purchaser approval.

b. Select configuration documentation, subject to Purchaser approval to be used to define configuration baselines for each CI;

c. Establish a release system for configuration documentation;

d. Define and document interfaces in accordance with Purchaser approved Interface Identification schemes;

e. Enter each item of configuration documentation and computer software source/object code into a controlled developmental configuration;

f. Establish the functional, allocated and product baselines at the appropriate points in the system/CI life cycle;

g. Assign unique part numbers and UIDs to CIs and their component parts and associated configuration documentation, including revision and version numbers where appropriate, i.a.w. the guidance given in Appendix 2, assigning Unique Item Identification in accordance with STANAG 2290 and AUIDP-1, assigning serial and lot numbers as requested by the Purchaser, to establish the CI effectivity of each configuration of each item of hardware and software;

h. Ensure that the marking of items and documentation with their applicable identifiers enables correlation between each item, its configuration

documentation, and other associated data, and is in accordance with the naming and identification rules established by the Purchaser;

i. Ensure that the unique identifiers are embedded in source and object code and electronically embedded in firmware with matching physical labels and ensure that the information is accessible.

SOC013-b/- Configuration Identification (2)

The CI breakdowns shall be proposed by the Contractor and will be subject to agreement by the Purchaser.

9.1.2.1. Documentation of a Configuration Item

(1) For each CI, a set of configuration documentation is required to define its performance, functional and physical attributes including internal and external interfaces.

(2) Configuration documentation is part of the Technical Data Package (TDP).

SOC014/- Configuration Documentation

The Contractor shall establish configuration documentation in accordance with para 9.1.4.6., the contractual requirements and Purchaser provided guidance.

SOC015/- Documentation and Data Exchange Specifications

As a part of the configuration identification process, the Contractor shall recommend, subject to agreement by the Purchaser, the documentation and Data Exchange Specifications (DEXs) based on STANAG 4661, that will be used to exchange the required configuration baseline(s) information.

SOC016/- Internally Controlled Documentation

The Contractor shall identify the documentation that will be internally controlled in the developmental configuration for each CI.

9.1.3. Configuration Item Selection

(1) All CIs associated with any given development programme are not necessarily designated as CIs at the same point in time. The approval of the final CI selection will be made by the Purchaser.

SOC017-a/- CI Selection (1)

The Contractor shall select and recommend potential CIs to the Purchaser based on ACMP-2 (selection criteria can also be found in MIL-HDBK-61A).

SOC017-b/- CI Selection (2)

The Contractor shall identify as a CI any item for which a separate maintenance procedure is to be provided, or which is referenced in such a procedure, or any item which is designated for separate procurement.

SOC017-c/- CI Selection (3)

The Contractor shall treat hardware as Hardware Configuration Items (HWCIs).

SOC017-d/- CI Selection (4)

The Contractor shall treat computer software as Computer Software Configuration Items (CSCIs) throughout the life of the project regardless of how the software will be stored.

9.1.4. Configuration Baselines

SOC018/- Management of Baselines

The Contractor shall manage the baselines in accordance with this CMRD and relevant Project CDRLs.

9.1.4.1. Functional Baseline

(1) The functional baseline describes:

a. Functional and Performance characteristics;

b. Test requirements;

c. The necessary interface characteristics with associated CIs;

d. Key lower level CIs, if any;

e. Design constraints.

(2) The Functional Baseline (FBL) will be established by the Purchaser from the requirements in the Procurement Specification (PS).

(3) The FBL will include:

a. The Procurement Specifications;

b. Any other documentation which further describes any one of the items in para (1) above.

SOC019/- Functional Baseline Expansion

Based on the contractual requirements, the Functional Baseline (FBL) for each project shall be expanded by the Contractor from the Procurement Specification (PS) and provided for Purchaser approval.

SOC020/- Functional Baseline Approval

The Contractor shall submit the FBL for approval by the Purchaser at the System Design Review (SDR).

9.1.4.2. Developmental Baseline

(1) The Developmental Baseline (DBL) is derived from the FBL.

(2) The establishment of the Allocated Baseline (ABL) is the Contractor's responsibility.

SOC021-a/- DBL Establishment (1)

The Contractor shall establish the DBL i.a.w. the list called in the CDRL and the contractual requirements.

SOC021-b/- DBL Establishment (2)

The Contractor shall provide the DBL for Purchaser approval.

SOC022/- DBL Documentation

The Contractor shall include in the DBL documentation:

a. The functional and performance requirements that are allocated from the functional baseline and/or from higher level CIs to lower level CIs;

b. The tests required to demonstrate achievement of those functional characteristics;

c. The necessary interface characteristics with associated CIs;

d. Design constraints.

SOC023/- DBL Approval

The Contractor shall submit the DBL for approval by the Purchaser at the Preliminary Design Review (PDR).

9.1.4.3. Product Baseline

(1) The Product Baseline (PBL) is derived from the DBL.

(2) The establishment of the Product Baseline (PBL) is the Contractor's responsibility.

SOC024-a/- PBL Establishment (1)

The Contractor shall establish the Product Baseline (PBL), subject to Purchasers approval, i.a.w. the list called in the CDRL and the contractual requirements.

SOC024-b/- PBL Establishment (2)

Based on the contractual requirements, the PBL shall be provided by the Contractor for Purchaser approval.

SOC025/- Product Baseline Documentation

The Contractor shall include in the PBL documentation:

a. All the necessary physical and functional characteristics required to manufacture or procure the item;

b. The selected physical and functional characteristics designated for production acceptance testing;

c. The production acceptance tests;

d. Complete identification and status of the approved hardware, firmware and software.

SOC026/- Product Baseline Approval

The Contractor shall submit the draft PBL to the Purchaser not later than Critical Design Review. The final PBL will be approved by the Purchaser at Provisional System Acceptance (PSA).

9.1.4.4. Developmental Configuration

(1) The Developmental Configuration is the Contractor's design and associated technical documentation that defines the Contractor’s evolving design solution during development of a CI. The developmental configuration for a CI consists of that Contractor internally released technical documentation for hardware and software design that is under the developing Contractor's configuration control.

SOC027-a/- Developmental Configuration (1)

The Contractor shall establish and implement automated developmental configuration management processes for CIs and its documentation.

This process is used to control the documentation and repositories containing the elements of the developmental configuration. The process will be smoothly transitioned to the in-service configuration management authority.

SOC027-b/- Developmental Configuration (2)

The Contractor shall manage Engineering Changes, Implementation and Test Descriptions in the configuration status accounting system to provide traceability between these pieces of information.

At any point of time, the database will provide the status of currently applied Engineering Changes, CIs and documents impacted by the changes, and related test data.

SOC027-c/- Developmental Configuration (3)

The Contractor's automated CM processes shall produce reports of all reported problems/changes against all CIs which have been placed under its CM processes.

SOC027-d/- Developmental Configuration (4)

The reports shall enable tracking of all unique identified problems/changes from the initial report through analysis, evaluation, development, test and final close out.

SOC027-e/- Developmental Configuration (5)

The Contractor shall provide the Purchaser with problem/change reports which describe each problem detected in CIs or documentation that has been placed under his internal configuration control.

9.1.4.4.1. Corrective Action Process

SOC028-a/- Corrective Action Process (1)

The Contractor shall implement a corrective action process for handling all problems detected in the products under his internal configuration control.

SOC028-b/- Corrective Action Process (2)

The Contractor shall ensure that his corrective action process promptly reports all detected problems, the corrective action taken to resolve them and when resolution is achieved, and that status is tracked and reported and records of the problems are maintained for the life of the contract.

9.1.4.4.2. Software Developmental Plan

(1) If software is to be developed within this project, it is the Contractor's responsibility to establish a Software Development Plan.

{SWSDP0}

9.1.4.4.2.1. Software Development Library

SOC029-a/- Software Development Library (1)

The Contractor shall establish and control a Software Development Library (SDL) to facilitate the orderly development and subsequent support of software maintenance.

SOC029-b/- Software Development Library (2)

The Contractor shall include the SDL as an integral part of his integrated software engineering environment.

9.1.4.4.2.2. Software Development Files

SOC030-a/- Software Development Files (1)

The Contractor shall establish and maintain a Software Development File (SDF) for each software unit or logically related group of software units, for each Computer Software Configuration Item (CSCI) and, as applicable, for logical groups of CSCIs, for subsystems and for the overall system.

SOC030-c/- Software Development Files (3)

The Contractor shall record information about the development of the software in the appropriate SDFs and maintain the SDFs for the duration of the contract.

9.1.4.5. Product Data Management

SOC031-a/- Product Data Management (1)

The Contractor shall establish an automated system to store, manage and control documents, drawings and/or Data Exchange Specifications (DEXs) to provide a complete product definition.

SOC031-b/- Product Data Management (2)

The Contractor shall ensure that the Product Data Management System is part of or linked to his Configuration Status Accounting System.

9.1.4.6. Maintenance of Configuration Documentation

SOC032/- Control and Maintenance of Configuration Documentation

Once the related configuration baseline has been established, the Contractor, in coordination with the Purchaser, shall control and maintain the originals of the current approved configuration documentation for all CIs specified in the contract.

SOC033/- Compilation of Configuration Documentation

The Contractor shall compile configuration documentation in a Technical Data Package (TDP) in accordance with MIL-DTL-31000 and the contract requirements, subject to purchaser approval.

9.1.4.7. Configuration Documentation as Technical Data Package

(1) Configuration documentation is a technical description of an item adequate for supporting an acquisition strategy, production, engineering and logistics support. The description defines the required design configuration and procedures required to ensure adequacy of item performance. The configuration documentation consists of all applicable technical data on an item, such as engineering drawings and associated lists, product and process specifications and standards, performance requirements, quality assurance provisions, packaging details and such other data as may be necessary to describe material required business processes so that the item can be procured/ manufactured, as a whole, or as spare parts.

(2) The TDP elements which are procured will be those necessary to describe the system.

(3) The Purchaser will compile single TDPs containing final versions of appropriate data items provided by the Contractor throughout the contract.

SOC034/- Technical Data Package Elements

The Contractor shall provide the following TDP elements, which are based on MIL-STD-100, MIL-DTL-31000, MIL-STD-961 and MIL-STD-498, as described below:

a. Product drawings and associated lists. Product drawings and associated lists provide the necessary design, engineering, manufacturing and quality assurance requirements' information necessary to enable the procurement or manufacture of an interchangeable item that duplicates the physical and performance characteristics of the original product, without additional design engineering effort or recourse to the original design activity. They will be provided by the Contractor for all contract items. In the case of modified COTS items, the TDP will enable the original COTS item (or an exact equivalent) to be re-procured and

modified. Product drawings and associated equipment lists will be prepared in accordance with MIL-STD-100.

b. Software and Software Documentation. Software and software documentation will be prepared i.a.w. the contract and MIL-STD-498.

c. Specifications. The Contractor will be required to provide functional, development and product specifications i.a.w. MIL-STD-961. Product specifications will be provided for configuration items (CI).

d. As-Built Drawings (ABD). ABDs and data will be provided by the Contractor to reflect the final layout and wiring of the installed equipment.

e. Installation Documentation. Installation documentation includes those drawings produced by the Contractor for his installation teams.

SOC035/- Documentation Development

The Contractor shall develop the above documentation i.a.w. the contractual requirements.

SOC036/- Marking of Physical Media

The Contractor shall mark all physical media associated with technical documentation i.a.w. the contractual requirements.

SOC037/- Documentation Language

All Contractor-developed technical documentation shall be in the English (United Kingdom) language.

SOC038/- Technical Data Documentation Levels

The Contractor shall provide TDP documentation to the levels specified by the Purchaser.

SOC039/- Technical Data Electronic Format

The Contractor shall provide the TDP in a Product Life Cycle Support (PLCS) compliant electronic format which will be approved by the Purchaser.

9.1.5. Configuration Identifiers

SOC040/- Unique Identifiers

The Contractor shall assign CIs, sub-ordinate parts and their configuration documentation unique identifiers i.a.w. the guidance given in Appendix 2 and as described below.

SOC041/- Numbering Scheme

The Contractor shall propose and describe the numbering scheme, which will be subject to the Purchaser's agreement, in the Contractor's CMP.

9.1.5.1. NATO Commercial and Government Entity Code (NCAGE)

SOC042/- Commercial and Government Identifiers

The Contractor shall identify the design authority and manufacturer of CIs by the NATO Commercial And Government Entity (NCAGE) code and affix an NCAGE code to all CIs, their subordinate parts and assemblies, configuration documentation, software media and products.

9.1.5.2. NATO Stock Numbers

SOC043/- NATO Stock Number Identifiers

The Contractor shall assign/obtain NATO Stock Numbers (NSN) to CIs i.a.w. the logistics support requirements of the contract.

9.1.5.3. Document/Specification Numbers

SOC044-a/- Document and Specification Identifiers (1)

The Contractor shall assign and apply an identification number to documents specifications and all revisions, i.a.w. MIL-STD-961, and to engineering drawings, associated lists and ancillary documents and all revisions, i.a.w. MIL-STD-100 and as stated in Appendix 2.

SOC044-b/- Document and Specification Identifiers (2)

The Contractor shall propose the numbering scheme which will be subject to the Purchaser's agreement.

9.1.5.4. Hardware Part/Item Identification Numbers

SOC045-a/- Hardware and Part Number Identifiers (1)

The Contractor shall assign a discrete part/item identification number to each CI and its subordinate parts and assemblies.

SOC045-b/- Hardware and Part Number Identifiers (2)

The Contractor shall ensure that changes to the part/item identification number are made i.a.w. MIL-STD-100 (e.g., whenever a non-interchangeable condition is created).

SOC045-c/- Hardware and Part Number Identifiers (3)

The Contractor shall propose and describe the numbering scheme, which will be subject to the Purchaser’s agreement, in the Contractor’s CMP.

9.1.5.5. Software Identifiers

SOC046-a/- Software Identifiers (1)

For each CSCI, the Contractor shall identify its corresponding Computer Software Units (CSUs).

SOC046-b/- Software Identifiers (2)

For each CSCI and CSU the Contractor shall issue or obtain a software identifier, which consists of a name, a part number and version identifier, and relates the software to the originating Contractor, its next highest CSCI and its associated software design documentation, revision and release date.

SOC046-c/- Software Identifiers (3)

For software which is not so identified, the Contractor shall embed the software and version identifiers within the source code and provide a method for display of the software and version identifier data to the user upon command.

SOC046-d/- Software Identifiers (4)

The Contractor shall propose and describe the numbering scheme, which will be subject to the Purchaser’s agreement, in the Contractor’s CMP.

9.1.5.5.1. Software Identification at Computer Software Unit Level

9.1.5.5.1.1. Source File Identification

SOC047-a/- Source File Identification (1)

For all non-COTS Software, the Contractor shall identify source files by the complete path, including the name of the Virtual Object Base (VOB) or Vault, of the tree in which this element is located.

SOC047-b/- Source File Identification (2)

To assure the uniqueness of an element, the Contractor shall give the VOBs/Vaults different names.

9.1.5.5.1.2. Object File Identification

SOC048-a/- Object File Identification (1)

The Contractor shall identify object files of the developmental configuration by their source file name followed by a file extension.

SOC048-b/- Object File Identification (2)

The Contactor shall ensure the uniqueness of object file identification in the same way as described for the source files.

9.1.5.5.1.3. Executable File Identification

SOC049-a/- Executable File Identification (1)

The Contractor shall identify executable files of non-COTS software by a release name, which is defined to be a label that is applied to the version of all elements used to generate the Executable File.

SOC049-b/- Executable File Identification (2)

The Contactor shall ensure the uniqueness of executable file identification in the same way as described for the source files.

SOC049-c/- Executable File Identification (3)

The Contractor shall identify executable COTS files with their name and version, their serial number and a part number in accordance with the requirements in the contract.

SOC049-d/- Executable File Identification (4)

The Contractor shall address executable files by reference in the Software Development Library.

9.1.5.5.1.4. Patch Identification

(1) Patch versions of elements are identified by a unique label that identifies the Problem Trouble Reports (PTRs) and the release being patched. The patched status is entered into the corresponding PTR.

(2) Patches are tracked between releases. Patches are reapplied to subsequent releases if not corrected in a delivered PTR correction, at the discretion of Integration.

SOC050/- Patch Identification

The Contractor shall maintain the uniqueness of identification by ensuring that any modification to an element will produce a new version of the element.

9.1.5.7. File Identification Schemes

(1) For each controlled item within the configuration, a version number is maintained to track the revisions authorised by the controlling CCB. The associated PTR contains the release identifier and hence the link to the version number of the controlled item at the time the problem is detected and the release identifier of the product that has the fix installed. COTS software will continue to be identified with the part, version number and name assigned by the vendor. Released baseline software or documentation is identified in accordance with the Contractor's CMP, following the principles as described in this document.

9.1.5.8. Electronic Media Identification

SOC052/- Electronic Media Identification

The Contractor shall ensure that electronic media prepared for delivery is identified in accordance with the Contractor's CMP, following the principles as described in this document.

9.1.5.9. Serial or Lot Numbers

SOC053-a/- Serial or Lot Numbers (1)

The Contractor shall assign serial or lot numbers to like items, or to groups (lots) of like items for items identified by the Purchaser.

SOC053-b/- Serial or Lot Numbers (2)

The serial or lot numbers shall be:

a. A maximum of 15 alphanumeric characters, with at least the last 4 being numeric;

b. Unique, consecutive and non-duplicating for all items with that specific nomenclature.

9.1.5.9.1. Purchaser Serial Numbers

SOC054/- Purchaser Serial Numbers

The Contractor shall affix Purchaser-identified serial numbers to Purchaser furnished deliverable CIs.

9.1.5.10. Reuse of Serial Numbers

SOC055-a/- Serial Numbers Reuse (1)

The original serial number of a unit/item/CI shall not be changed.

SOC055-b/- Serial Numbers Reuse (2)

Once assigned, serial numbers shall not be reused for the same item/unit/CI.

9.1.5.11. Unique Item Identifier (UID)

(1) The Purchaser will identify items to be uniquely identified, with UIDs in accordance with STANAG 2290 and AUIDP-1. The following categories of items are considered an initial baseline for identifying with UID:

- Configuration Items (CI)
- Repairable items
- Currently serially managed items
- Controlled Items
- Items requiring certification, calibration, or confirmation of disposal
- Items required by statute or policy
- Items with a significant value or cost

- Items constructed, at least partly, by separately identifiable UID components
- Items identified as being mission critical, and assigned a RIC at the NSN level
- Items subject to one or more forms of through-life measurement
- Life limited components
- Government Furnished Equipment in Contractor possession

9.1.5.12. Product Identification/Marking

SOC056-a/- Product Identification Marking (1)

The Contractor shall mark all CIs including parts, assemblies, units, sets and other pieces of military property i.a.w. STANAG 2290.

SOC056-b/- Product Identification Marking (2)

The Contractor shall mark the items in such a manner that life time sustainability of the mark can be guaranteed (i.e. dot-peen, laser-etch, metal plate). The method of marking will naturally differ from item to item based upon the item material and usage patterns.

9.1.5.13. Software Marking and Labelling

SOC057-a/- Software Marking and Labelling (1)

The Contractor shall embed software security classification, identifier and version in the source code header.

SOC057-b/- Software Marking and Labelling (2)

The Contractor shall mark each software medium (e.g., magnetic tape, disk, CD ROM) containing copies of tested and verified software entities with a label containing, or providing cross-reference to, a listing of the applicable software identifiers of the entities it contains.

SOC057-c/- Software Marking and Labelling (3)

The Contractor shall label each media unit for deliverable CSCIs with its security classification, the Purchaser Contract number, CSCI identifier, Media Number (e.g., 1 of 2, 2 of 2) if there are multiple units per set and copy number of the medium or media set (if there is more than one copy being delivered).

SOC058-a/- Software Copy Numbers (1)

Media copy numbers shall distinguish each copy of the software media from its identical copies.

SOC058-b/- Software Copy Numbers (2)

Each time a new version of software is issued, new copy numbers, starting from 1, shall be assigned.

9.1.5.15. COTS Labelling

SOC060/- COTS Labelling

When a COTS CI is modified (e.g. an assembly of COTS items) to satisfy contractual requirements, the Contractor shall re-identify it as a NATO modified CI and document and control it i.a.w. the requirements of this CMRD.

9.1.5.16. Naming Convention

SOC061/- Approved Item Names

The Contractor shall assign approved item names to CIs in accordance with the H6 Handbook Naming & Numbering Convention (ACodP-3).

9.1.6. Product Structure

(1) Each item in the product structure will require its own configuration information.

SOC062/- Product Structure

The Contractor shall establish and submit a Product Structure which shows the inter-relationships between all CIs (HW, SW, FW), their sub-ordinate parts and the respective documentation subject to the Purchasers approval.

9.1.7. Interface Management

SOC063-a/- CM of Interfaces (1)

The Contractor shall fulfil the requirement to configuration manage functional and physical external and internal interfaces.

SOC063-b/- CM of Interfaces (2)

The Contractor shall document data in the respective interface specifications, as identified in the contract, and recorded in the Configuration Status Accounting system as part of the product structure.

SOC064/- Interface Numbering

The Contractor shall identify Interfaces in accordance with Appendix 2 of this CMRD.

9.2. Configuration Control

(1) Configuration control is the systematic evaluation, coordination, approval or disapproval and dissemination of all proposed changes to a CI and/or its configuration documentation after formal establishment of its configuration baseline and verifying the implementation of all approved changes.

(2) Configuration control begins with the establishment of the requirements and continues throughout the life cycle of the CI.

SOC065/- Configuration Control Programme

The Contractor shall implement a configuration control process which shall:

a. Ensure effective control of all CIs and their approved configuration documentation;

b. Provide effective means for proposing engineering changes to CIs, requesting deviations or waivers pertaining to such items, preparing notices of revision and preparing specification change notices;

c. Ensure implementation of approved changes.

SOC066-a/- Application of Configuration Control Measures (1)

The Contractor shall apply configuration control measures to the configuration documentation for each CI, prior to it being formalised as a baseline by the Purchaser.

SOC066-b/- Application of Configuration Control Measures (2)

The Contractor shall apply configuration control measures to each baseline configuration item and its configuration documentation.

SOC067/- Configuration Control during Acquisition

During the acquisition phase, the Contractor's Configuration Control Programme shall be in accordance with this CMRD.

SOC068-a/- Configuration Control during Transition (1)

During the transition phase (warranty period) the Contractor's Configuration Control Programme shall be in accordance with this CMRD or equivalent procedures and templates to be provided by the purchaser.

SOC068-b/- Configuration Control during Transition (2)

The Contractor shall submit Engineering Change Proposals i.a.w. TME-2500 procedures, or equivalent procedures and templates to be provided by the purchaser, for Purchaser approval or for information.

SOC069/- Configuration Control when In-service

During the in-service phase, the Configuration Control Programme shall be in accordance with TME2500 procedures and templates or equivalent procedures and templates to be provided by the purchaser.

9.2.1. Requirements for Engineering Change Proposals (ECPs)

SOC070/- Submission of Engineering Change Proposals

An Engineering Change Proposal (ECP) shall be required for any changes to the Purchaser approved configuration documentation. An ECP may be submitted by the Contractor.

{CMECP0}
{CMRFD0}
{CMRFW0}

9.2.2. Engineering Change Process

SOC071/- Engineering Changes during Acquisition and Transition Phases

During the acquisition and transition phase, the Contractor shall include the following elements in its configuration control process:

a. Classification of the engineering changes as Class I or Class II i.a.w. the requirements of STANAG 4427 ACMP-3;

b. Preparation of an Engineering Change Proposal (ECP) i.a.w the requirements of STANAG 4427 ACMP-7, Annex A. The Purchaser may authorise the use of a sub-set of the Annex A data elements;

c. Submittal of the ECP to the Purchaser;

d. Review Purchaser ECP disposition;

e. Incorporation of approved engineering changes in the documentation;

f. Implementation of the change i.a.w. the contract.

SOC072/- Engineering Changes during the In-service Phase

During the in-service phase, the Contractor shall include the following elements in its configuration control process:

a. Classification of the engineering changes as Class I or Class II i.a.w. the requirements in TME-2500;

b. Preparation of an Engineering Change Proposal (ECP) i.a.w. TME-2500.

c. Submittal of the ECP to the Purchaser;

d. Review Purchaser ECP disposition;

e. Incorporation of approved engineering changes in the documentation;

f. Implementation of the change i.a.w. the contract.

9.2.3. Administrative Requirements

9.2.3.1. Classification and Prioritization of Engineering Change Proposal

SOC073/- ECP Classification and Prioritization

The Contractor shall classify an Engineering Change Proposal as Class I or Class II and assign the respective priorities i.a.w. STANAG 4427 ACMP-3. The Purchaser will approve the proposed ECP classification and prioritization.

9.2.3.2. Submission of Engineering Change Proposals

SOC074-a/- Preliminary ECP (P-ECP) (1)

A preliminary change proposal (P-ECP) may be submitted prior to the availability of the information necessary to support a formal ECP (F-ECP).

SOC074-b/- Preliminary ECP (P-ECP) (2)

A P-ECP shall be provided, as a minimum i.a.w. STANAG 4427 ACMP-3 para 5.1.4.

SOC074-c/- Preliminary ECP (P-ECP) (3)

The Contractor shall prepare and submit a formal ECP for each preliminary ECP approved by the Purchaser.

SOC075/- Formal Engineering Change Proposals (F-ECP)

The Contractor shall prepare and submit a formal ECP for each preliminary ECP approved by the Purchaser.

SOC076/- Submission of ECPs during the Acquisition and Transition Phases

During the acquisition/transition phase, the Contractor shall submit ECPs using the procedures detailed in STANAG 4427 ACMP-3 and the documentation in STANAG 4427 ACMP-7, Annex A or a subset of the data elements approved by the Purchaser.

SOC077/- Submission of ECPs during the In-service Phase

During the in-service phase, the Contractor shall submit ECPs using the procedures detailed in TME-2500.

9.2.3.3. Related Engineering Changes

(1) A proposed engineering change in one item (the basic engineering change) may require related engineering changes in other associated items in order to retain (or attain) either an interface match or compatibility with and interoperability between associated items.

SOC078-a/- Related Engineering Changes (1)

The Contractor shall include in the ECP package both the basic and all such related engineering changes when the basic item and other associated items affected by related engineering changes are the responsibility of the Contractor.

SOC078-b/- Related Engineering Changes (2)

The Contractor shall provide the basic change and the related change(s) to the Purchaser if the associated item(s) is being acquired under the same contract.

9.2.3.4. Numbering Related Engineering Changes

SOC079-a/- ECP Numbering (1)

The Contractor shall assign the basic ECP number to the ECP applicable to the item which is the immediate objective of the desired ECP.

SOC079-b/- ECP Numbering (2)

The Contractor shall identify related ECPs submitted to the Purchaser in accordance with Appendix 2, para 3.

9.2.4. ECP Authorisation

SOC080/- ECP Authorization

Receipt of Purchaser contractual authorisation shall be the sole authority for the Contractor to implement a Class I engineering change.

(1) The following ECP dispositions are possible:

For acquisition phase:

Disposition	Explanation
Planned	Purchaser and / or Contractor planned ECPs no document yet available
ECP Draft	The Purchaser and / or Contractor has started drafting the ECP.
P-ECP Initiation	The P-ECP has been formally created and registered and is ready to be tabled to the Configuration Control Board (CCB) for release.
NCCB P-ECP Endorsement	The CCB has released the P-ECP
P-ECP Rework	The P-ECP has been send back to the originator
P-ECP Released	The P-ECP has been released to the Contractor
E.A. Request	Purchaser has requested an engineering assessment based on a released P-ECP
E.A. Rework	Engineering Assessment to be reworked
NCCB E.A. Review	CCB is reviewing the Engineering Assessment
NCCB E.A. Endorsement	CCB has endorsed the Engineering Assessment
F-ECP Request	Purchaser requested a F-ECP
F-ECP Review	F-ECP in Purchaser review
F-ECP Rework	F-ECP to be reworked by Contractor
NCCB F-ECP Review	CCB is reviewing the F-ECP
NCCB F-ECP Endorsement	CCB has endorsed the F-ECP
F-ECP Price Negotiation	Final Price negotiations for cost-F-ECPs
F-ECP Approval	F-ECP has been approved by Purchaser
ECP Withdrawn	ECP has been withdrawn without any further actions.

For the In-service phase:

Disposition	Explanation
Approved for Implementation	The Purchaser has approved the ECP and authorized its implementation within/approved resources.
Approved for abeyance	The Purchaser has approved the ECP, but the implementation is under suspense related to specific conditions.
Deferred for revision	The Purchaser has deferred the ECP by asking for resubmission of a revision
Deferred	The Purchaser has deferred the ECP for other reasons.
Rejected	The Purchaser has rejected the ECP.
Cancelled	A formerly approved ECP was cancelled by the purchaser.

9.2.5. Requirements for Requests for Deviation / Waivers

(1) Authorised deviations are a temporary departure from requirements and do not constitute a change to the FBL, ABL or PBL. Where it is determined that a change should be permanent, a Class I or Class II engineering change must be processed.

(2) Authorised waivers apply to a specific quantity of manufactured items and do not constitute a change to the FBL, ABL or PBL. Where it is determined that a change should be permanent, a Class I or Class II engineering change must be processed.

SOC081-a/- Deviations and Waivers (1)

The Contractor shall request a deviation i.a.w. STANAG 4427 ACMP-7, Annex C prior to manufacture of an item, if the Contractor considers it necessary to temporarily depart from the requirements.

SOC081-b/- Deviations and Waivers (2)

The Contractor shall not manufacture items for acceptance by the Purchaser that incorporate a known departure from requirements, unless a Request For Deviation (RFD) has been approved by the Purchaser i.a.w. the requirements of STANAG 4427 ACMP-3.

SOC081-c/- Deviations and Waivers (3)

If, during or after manufacture of an item which incorporates a known departure from requirements, it is determined that the item is considered suitable for use "as is" or after repair by an approved method, the Contractor shall prepare a request for waiver i.a.w. STANAG 4427 ACMP-7 and Annex C.

SOC081-d/- Deviations and Waivers (4)

If the Contractor determines, either during or after manufacture, that an item does not meet its specification requirements, it shall not be offered for acceptance by the Purchaser unless the Purchaser has approved a Request For Waiver (RFW) i.a.w. STANAG 4427 ACMP-3.

9.2.6. Request for Deviation/Waiver Procedure

SOC082-a/- Restrictions on Deviations and Waivers (1)

The Contractor shall not request critical deviations or waivers, or deviation and waivers, which will affect service operation, logistic interoperability, or maintenance (e.g. repair parts, operation and maintenance procedures, or compatibility with trainers or test-sets).

SOC082-b/- Restrictions on Deviations and Waivers (2)

The Contractor shall submit an Engineering Change Proposal if the scope of a proposed deviation or waiver includes the entire remaining number of deliverable units on the contract.

SOC083-a/- Recurring Deviations and Waivers (1)

The Contractor shall minimize the submission of recurring deviations or waivers. If a proposed deviation or waiver is recurring (a repetition or extension of a previously approved deviation/waiver), it is probable that either the requirements of the documentation are too stringent or the corrective action was ineffective.

SOC083-b/- Recurring Deviations and Waivers (2)

The Contractor shall address the need for an engineering change proposal with the Purchaser if it becomes necessary for the Contractor to request a deviation or waiver for the same situation with the same item more than twice.

9.2.7. Requirements for Contract Changes

SOC084/- Contract Changes

All Contract Changes shall be submitted and processed as an ECP.

9.2.8. Parts Substitutions

SOC085/- Parts Substitution

Unless otherwise specified in the contract, part substitution for parts identified in the current approved configuration documentation of an item from the product baseline, through the remainder of the item's life cycle, shall conform to the regulation provided in Appendix 1.

9.2.9. Requirements for Notices of Revision

SOC086-a/- Notice of Revision (1)

The Contractor shall, as an integral part of an ECP, prepare and submit a Notice of Revision (NOR) i.a.w. STANAG 4427 ACMP-3, for each document which will require revision if the ECP is approved.

SOC086-b/- Notice of Revision (2)

The Contractor shall process a NOR i.a.w. the documentation in STANAG 4427 ACMP-7, Annex B.

SOC086-c/- Notice of Revision (3)

The Contractor shall submit a NOR to the Purchaser as part of the ECP for approval, or disapproval.

SOC087/- Correction of Minor Errors

The Contractor shall only correct errors of a minor nature (such as typographical errors, punctuation, etc.) as an incidental part of a technically required ECP affecting that CI specification.

9.2.10. Problem/Change Reports for Software

(1) Any problem detected during software development and test is reported by use of a Problem Trouble Report (PTR). A problem is reported by using the PTR to define the problem, recommend action to be taken and to support the implementation of the solution. The status of the PTRs is maintained and provided as summary reports to the CCB.

SOC088/- Problem Trouble Report

The Contractor shall describe the data contained within a PTR form in the Contractor CMP, subject to the Purchaser's agreement.

9.2.11. Engineering Release and Correlation of Manufactured Products

SOC089-a/- Engineering Release (1)

The Contractor shall establish and maintain an engineering release system and use the system to issue configuration documentation to functional areas (e.g., development, manufacturing, logistics, quality assurance, acquisition) and to authorise the use of configuration documentation associated with an approved configuration.

SOC089-b/- Engineering Release (2)

The Contractor shall maintain current and historical engineering release information for all configuration documentation of all configuration items and their component parts.

SOC089-c/- Engineering Release (3)

The engineering release system shall interrelate with the Contractor's internal system of controls to ensure that all engineering changes have been incorporated in production items as specified in their configuration documentation.

9.2.11.1. Specification Release and Approval

(1) Completion of the release and approval activities indicates mutual acceptance by the Purchaser and the Contractor of the CI's requirements, as defined in the specification and referenced documents. After approval the specification establishes the appropriate baseline.

SOC090/- Specification Release

The Contractor shall include on each CI specification a Contractor's release signature indicating that the document has been reviewed and is suitable for its intended use.

SOC091/- Specification Approval

The Contractor shall submit each CI specification to the Purchaser for an approval signature.

9.2.12. Requirements for Engineering Release Records

9.2.12.1. Use of Engineering Release Records

SOC092-a/- Engineering Release Records (1)

The Contractor shall utilise an Engineering Release Record (ERR) to release new or revised configuration documentation to the Purchaser for approval.

{CMERR0}

(1) The Purchaser approved ERR releases the configuration documentation for use by the Contractor and Purchaser.

SOC092-b/- Engineering Release Records (2)

The Contractor shall ensure that information about the newly released and approved configuration documentation is consistent with and is incorporated into the CSA information system.

9.2.12.2. Change Release

SOC093-a/- Change Release (1)

The Contractor shall only make changes to the released configuration documentation as a result of an approved engineering change.

SOC093-b/- Change Release (2)

The Contractor shall utilise the ERR to make changes to the released configuration documentation.

SOC093-c/- Change Release (3)

The Contractor shall not release changes before the complete package of affected documentation is ready for simultaneous release, except under extraordinary circumstances as approved by the Purchaser.

9.2.12.3. Consolidation of Multiple Changes into a Single Engineering Release Record

(1) Unrelated Engineering Change Proposals (ECPs) may be combined into a single revision to a document provided that:

a. All changes apply to the same CI;

b. All changes apply to the same revision/version;

c. A separate ECP was processed for each unrelated change;

d. The change associated with each ECP is clearly identified.

9.3. Configuration Status Accounting

9.3.1. Purpose of Configuration Status Accounting

(1) The purpose of Configuration Status Accounting (CSA) is to:

a. Ensure accurate identification of each CI and delivered unit;

b. Provide full item traceability through the establishment of configurations;

b. Accurate maintenance of all baseline information and all changes proposed and authorized against the baselines;

c. To assist in the development of each CI;

d. To enable the necessary logistics support elements to be correctly programmed and made available in time to support the CI.

(2) An adequate and accurate CSA will enhance the programme and functional manager's capabilities to identify, develop, produce, inspect, deliver, operate, maintain, repair, refurbish, etc., CIs in a timely, efficient and economical manner.

SOC094/- Configuration Status Accounting System (CSA)

The Contractor shall establish a Configuration Status Accounting System (CSA) that provides an accurate state of the configuration and any related information at any phase of the projects life-cycle i.a.w. STANAG 4427 ACMP-4 and CDRL CMDATEX0.

{CMDATEX0}

9.3.2. Configuration Status Accounting Requirements

SOC095-a/- Configuration Status Accounting System Implementation (1)

The Contractor shall implement a CSA system which, as a minimum:

a. Identifies the current approved configuration documentation and identification number associated with each CI;

b. Identifies each CI and its component parts with a set of metadata as defined by the Purchaser;

c. Holds, as a minimum, the current approved as-designed, as-built and as-supported configuration(s) and its documentation for each CI;

d. Records and reports the status of proposed engineering changes from initiation to final approval/contractual implementation;

e. Records and reports the results of configuration audits to include the status and final disposition of identified discrepancies;

f. Records and reports the status of all requests for deviations and waivers;

g. Records and reports implementation status of authorised changes;

h. Provides the traceability of all changes from the original baseline configuration documentation of each CI;

i. Reports the effectivity and installation status of configuration changes to all CIs at all locations;

j. Provides the Purchaser with the Contractor originated data required to populate and update the Purchaser's CM database i.a.w. the contract requirements;

k. Maintains the traceability links between all related data to enable the retrieval and integration of various data items, the navigation through the (implicit/explicit) links established between the items and the creation of the traceability matrix between all related data items;

l. Records all identified deficiencies and link them to the respective CIs;

m. Provides complete traceability from Requirements to CIs and Test Information.

SOC095-b/- Configuration Status Accounting System Implementation (2)

The Contractor shall carry out CSA i.a.w. STANAG 4427 ACMP-4 and ISO10303-28 DEX01 and DEX08. Additional DEXs, if required, will be defined in coordination with the purchaser.

9.3.2.1. Reporting and Metrics Requirements

(1) The Contractor is responsible for generating reports and matrices from the CM Databases as defined in the Contractor CMP and providing these reports on a regular basis to the Purchaser.

SOC096/- Reports and Matrices

The required records shall be defined in coordination with the Purchaser and described in the Contractor CMP.

9.3.3. Retention of Historical Data Base

SOC097-a/- Retention of Data (1)

The Contractor shall retain a complete historical record of all the information required by the Purchaser to be stored in the system.

SOC097-b/- Retention of Data (2)

The Contractor shall format and maintain such historical information so that it can readily be copied, in total, or by specific elements and identified by the Purchaser for transfer in the format specified in the appropriate Contract Data Requirements List (CDRL).

9.3.4. Subcontractors

(1) The Contractor is responsible for the determination of the extent to which the contract CSA requirements are applicable to Subcontractors, vendors and suppliers and for the application of the necessary requirements to those Subcontractors, vendors and suppliers to meet the requirements of the Purchaser.

SOC098/- Information from Subcontractors

The Contractor shall provide all of the information required by this CMRD, including the acquisition of the needed data from the Sub-Contractors, vendors and suppliers.

9.3.5. Configuration Status Accounting Data Elements

SOC099-a/- CSA Data Elements (1)

The Contractor shall select the CSA data elements to be used based on the contractual requirements; however, when a contract CDRL requires data in ISO10303-28 elements are potential CSA data elements.

SOC099-b/- CSA Data Elements (2)

Data elements provided by the Contractor shall be compliant with the format defined by the contract so that they can be easily integrated into the Purchaser's CM System.

9.3.7. Configuration Status Accounting Analysis Requirements

SOC101-a/- CSA Data Analysis (1)

The Contractor shall review and analyse CSA data to identify potential or actual problems which impact the Purchaser.

SOC101-b/- CSA Data Analysis (2)

When potential or actual problems which impact the Purchaser are detected, the Contractor shall contact the Purchaser within one working day to establish a course of action to rectify the situation.

SOC101-c/- CSA Data Analysis (3)

In addition, the Contractor shall:

a. Perform an analysis to detect trends in the problems reported;

b. Evaluate corrective actions to:

   i. Verify that problems have been resolved, adverse trends have been reversed and changes have been correctly implemented in the appropriate processes and products;

   ii. Determine whether additional problems have been introduced.

9.3.8 CM Data Availability

SOC102/- Data Exchange

The Contractor shall provide CSA and PLCS data to the Purchaser i.a.w. the Purchaser CMRD and the relevant CDRL.

{CMDATEX0}

SOC103/- Data Accessibility

To enable the Purchaser to access the CM data on the wide variety of workstations and personal computers in use, in their native windowing environment, the Contractor shall provide the Purchaser with information on the appropriate software and licenses required.

SOC104/- Data Access

The Contractor shall provide the Purchaser with access to CM data residing in the Contractor's CSA system as required by the Purchaser.

9.4. Configuration Verifications and Audits

(1) Configuration verification is a process that is common to configuration management, systems engineering, design engineering, manufacturing and quality assurance. It is the means by which a Contractor verifies his design solution.

(2) The functional aspect of configuration verification encompasses all of the test and demonstrations performed to meet the quality assurance sections of the applicable performance specifications. The tests include verification/qualification tests performed on a selected unit or units of the CI, and repetitive acceptance testing performed on each deliverable CI, or on a sampling from each lot of CIs, as applicable. The physical aspect of configuration verification establishes that the as-built configuration is in conformance with the as-designed configuration. The Contractor accomplishes this verification by physical inspection, process control, or a combination of both.

SOC105/- Functional and Physical Configuration Audits

The Contractor shall plan, prepare and conduct Functional and Physical Configuration Audits (FCA/PCA) in coordination and with the participation of the Purchaser, for the acceptance of each CI and prior to establishing the PBL for each product (CI).

{CMAUDITP0}

{CMAUDITR0}

SOC106/- Subsequent Audits

If the Purchaser has identified deficiencies preventing completion of the Configuration Audit, the Contractor shall, on request by the Purchaser, conduct additional audits until all deficiencies have been rectified.

(3) Additional PCAs may be performed during production for selected changes to the item's configuration documentation or when Contractors are changed.

9.4.1. Contractor Requirements

(1) The Purchaser will designate a co-chairperson for each audit.

SOC107-a/- General Audit Requirements (1)

The Contractor shall be responsible for coordinating with the Purchaser, the time, place and agenda for each audit in accordance with the master milestone schedule, sufficiently in advance of each audit to allow adequate preparation for the meeting.

SOC107-b/- General Audit Requirements (2)

The Contractor shall provide the necessary resources and Material to perform the audit effectively. This includes:

a. Test Results;

b. Tools and inspection equipment necessary for evaluation and verification;

c. Unencumbered access to the area and facilities of incoming inspection, fabrication, production and testing;

d. Personnel from each engineering, manufacturing and quality department to be available for discussion in their respective areas;

e. Copies of inspection reports, process sheets, data sheets and other documents as deemed necessary by the Purchaser FCA/PCA teams;

f. A chairperson for each configuration audit;

g. Records of all discrepancies identified by the audit team, and processed as part of the audit activities, until each one is closed out. Records of all

action items in the minutes and identification of both the Purchaser and Contractor actions required to resolve each item;

h. Meeting agenda/plans and conference room(s);

i. Applicable system engineering data, specifications, drawings, manuals, schedules, design data, test methods and test data;

j. Speciality studies results, trade-off studies results and risk analysis results;

k. A stenographer or other acceptable method to record inputs to the official meeting minutes.

SOC107-c/- General Audit Requirements (3)

The Contractor shall ensure that:

a. Each audit schedule is compatible with the availability of the necessary information (e.g. system engineering data, specifications, drawings, manuals, schedules, design data, test methods, trade-off studies results and risk analysis results);

b. Participating Contractor personnel are prepared to discuss in technical detail any of the Material within the scope of the audit;

c. All action items are recorded in the minutes and each action item identifies whether the Purchaser and/or the Contractor is required to take action;

d. The minutes are available for review by the Contractor and the Purchaser prior to publication;

e. The official minutes are published and distributed.

SOC107-d/- General Audit Requirements (4)

The Contractor shall ensure that the minutes contain:

a. A record of the meeting only as dictated by the co-chairpersons;

b. A record of significant questions and answers, action items, deviations, conclusions and recommended courses of action; and.

c. A record of recommendations not accepted together with the reasons for non-acceptance.

9.4.2. Functional Configuration Audit

SOC108-a/- Functional Configuration Audit Requirements (1)

The Contractor shall conduct a Functional Configuration Audit (FCA) for each CI for which a separate development specification has been baselined by the Contractor.

SOC108-b/- Functional Configuration Audit Requirements (2)

During the course of the FCA the Contractor shall either carry-out or report on, as appropriate, the action required by STANAG 4427 ACMP-5, paragraph 5.1.

9.4.3. Physical Configuration Audit

SOC109/- Physical Configuration Audit Requirements

The Contractor shall conduct a Physical Configuration Audit (PCA) i.a.w. STANAG 4427 ACMP-5, paragraph 5.2.

10. TECHNICAL REVIEWS

10.1. Technical Reviews

(1) The role of CM in the technical review process will include

a. Evaluating the adequacy of the type and content of the configuration documentation;

b. Ascertaining that the configuration control is under formal Purchaser and/or internal Contractor management;

c. Determining whether problems/action items identified at the review will require submittal of ECPs against the current approved configuration documentation.

SOC110/- Contractor Representation at Technical Reviews

The Contractor shall ensure that its CM representatives participate in all technical reviews conducted i.a.w. the contract requirements.

11. APPLICABLE DOCUMENTS

Document Number	Title	Application
STANAG 4427 Edition 2	Introduction Of Allied Configuration Management -Publications (ACMP)	
MIL-STD-1521 Revision B	Technical Reviews And Audits For Systems, Equipment, And Computer Software	
STANAG 4159 Edition 2	NATO Material Configuration Management Policy And Procedures For Multinational Joint Projects	
MIL-HDBK-61A	Configuration Management Guidance	
ACodP-3	H6 Handbook Naming & Numbering Convention	
MIL-STD-961E with Change 1	Defence and Program-Unique Specifications Format and Content	
MIL-STD-100G	DoD Standard Practice For Engineering Drawings	
MIL-DTL-31000C	Detail Specification Technical Data Packages	
STANAG 4661 Edition 1	Product Life Cycle Support	
STANAG 2290 Edition 2	NATO Unique Identification of Items	
AUIDP-1 Edition 1	NATO Guidance on Unique Identification (UID) of Items	
TME2500 Issue N-02	ACCS Hardware Committee (AHC) Configuration Management Procedures	

Table 11.1-1 Applicable documents

APPENDIX 1 INTERCHANGEABILITY AND SUBSTITUTION

1. INTERCHANGEABILITY AND SUBSTITUTION

(1) This section provides guidance on the implementation of an Interchangeability and Substitution List. Details for the usage of the various Phrase codes need to be coordinated with ILS.

2. DEFINITIONS

2.1. Interchangeable Item

(1) An interchangeable item is an item which:

a. Possesses such functional and physical characteristics as to be equivalent in performance, reliability, and maintainability, to another item of similar or Identical purpose; and

b. Is capable of being exchanged for the other item without:

i. Selection for fit or performance; and

ii. Alteration of the items themselves or of adjoining items, except for adjustment.

2.2. Replacement Item

(1) A replacement item is an item which is interchangeable with another item, but which differs physically from the original item in that the installation of the replacement item requires operations such as drilling, reaming, cutting, filing, shimming, etc., in addition to the normal application and methods of attachment.

2.3. Substitute Item

(1) A substitute item is an item which possesses such functional and physical Characteristics as to be capable of being exchanged for another only under specified conditions or in particular applications and without alteration of the items themselves or of adjoining items.

3. DISTINCTIONS

(1) Interchangeable items are items which might have different identification numbers but still remain fully interchangeable.

(2) Items with different identification numbers (PNs) may be interchangeable in some ways but not interchangeable in other ways. These items are called one-way or two-way substitutes.

(3) Items designated as "Approved Substitutes" may be approved for temporary use in place of preferred items.

(4) An item may be preferred over an alternate because of performance, cost, reliability or any of the several other reasons.

(5) Usage is preferably limited by time or quantity, not application. A column for limiting the use within an application should be included in the Interchangeability and Substitution configuration (I&S).

(6) The I&S is an appropriate place to make these distinctions.

(7) This configuration is used to relate interchangeable, replacement or substitute items together using a Phrase code, which describes their relationship.

(8) The I&S Configuration provides useful information to the Engineering as well as to the Logistics disciplines and is a very cost efficient way to keep configurations up-to-date without always going through extensive documentation changes.

(9) It is also an effective way to manage the fast evolving configuration of COTS items.

4. PHRASE CODES

(1) Phrase Codes are used to denote change and/or relationships between items. A list of possible Phrase Codes is shown in the Table 4.-1 below. Combinations of Phrase Codes are possible.

DEFINITION	PHRASE CODE	EXPLANATION
REPLACED BY	E	Indicates that the item represented by the PN in the described PN column is replaced by the interchangeable preferred item represented by the PN in the related PN column (stocks will be exhausted). Must be used in combination with Phrase Code G ascribed to the PN in the related PN column. Note: This phrase code applies to component parts only.
WHEN EXHAUSTED USE	F	Indicates that the item represented by the PN in the described PN column is replaced by the preferred item represented by the PN in the related PN column. This code indicates a one-way substitution. Note: This phrase code applies to component parts only.
USE UNTIL EXHAUSTED	G	Indicates that the item represented by the described PN is the replacement for the related PN. The described item will not be issued until the supply of the related item is exhausted. Note: This phrase code applies to component parts only.
SUITABLE SUBSTITUTE	H	Indicates that the item represented by the PN in the related PN column is an authorized substitute for the item represented by the PN in the described PN column. Note: This code indicates a one-way substitution: both items are stocked.
INTERCHANGEABLE WITH	J	Indicates that the item represented by the described PN and the item represented by the related PN are completely interchangeable. This code applies to assemblies only.
SUPERSEDED BY	L	Indicates that the item represented by the related PN is the replacement for the described PN which is no longer authorized for issue.
REFER TO	R	Indicates that the item represented by the PN in the described column requires special handling. Refer to the technical documentation listed.
CONDEMNED	T	Indicates that the described PN has been condemned and its use is prohibited. The replacement PN, if applicable, is represented by the PN in the related PN column.
CHANGE TO AFTER NAMWO	1	Indicate that the PN for the item in the described column is changed to the PN in the related PN column after the application of the NAMWO identified in the reference Document Column. Note: This code applies, in principle, to assemblies only.
LIMITED USAGE	2	Indicates that the related PN has been replaced by the described PN for improvement purposes. The related PN shall not be used in lieu of the described PN. This code shall be used in combination with phrase code “F”.
G.F.E.	4	Indicates that the item represented by the PN in the described PN column is “Government Furnished Equipment” and therefore under national responsibility.

Table 4.-1 Phrase Code Description

APPENDIX 2 NUMBERING AND NAMING SCHEME

1. CI IDENTIFICATION NUMBERING SCHEME

(1) The Project CI identification numbering scheme shall consist of the following parts:

a. An alphanumeric number which uniquely identifies the Configuration Item (CI), which may be a NATO Stock Number (NSN) or a Contractor supplied number.

b. The NATO Commercial and Government Entity Code (NCAGE) of the CI.

c. The identification number of the highest level (system level) CI of which it is a part.

2. CI AND DOCUMENTATION NAMING CONVENTION

(1) CI nomenclature shall be assigned in accordance with the H6 Handbook Naming & Numbering Convention (AcodP-3).

(2) CI nomenclature starts with a generic noun, which best describes the item followed by descriptive attributes in their descending order of significance and, if required, a type number is provided, for instance “Modem Assembly, Fibre Optic – Type 3 ".

(3) Documentation nomenclature starts with the document type (e.g.: IRS, SSE, etc.) and then continues with the Subject name (CI name or Prime Item name) in accordance with the respective Standards as stipulated by the contract.

(4) Documentation identification includes, as a minimum, a document number, a document type code (basic list will be provided by purchaser) and a revision.

3. ECP NUMBERING

(1) Numbers shall be assigned to identify each ECP.

(2) The numbering scheme shall be defined in the Contractor's CMP subject to the Purchaser's agreement.

4. NOR NUMBERING

(1) A unique number shall be assigned by entering the document identifier, a "/" delimiter and the revision letter of the document, a "-" delimiter followed by a sequential number starting with 1.

(2) First revision of a NOR is numbered “-“, then following revisions are numbered “1.0”, “2.0” and so on.

5. ERR NUMBERING

(1) Numbers shall be assigned to identify each Engineering Release Record (ERR).

(2) The numbering scheme shall be defined in the Contractor's CMP subject to the Purchaser's agreement.

6. ECR NUMBERING

(1) Numbers shall be assigned to each ECR.

(2) The numbering scheme shall be defined in the Contractor's CMP subject to the Purchaser's agreement.

7. DEVIATIONS/WAIVER NUMBERING

(1) Numbers shall be assigned to each Deviation/Waiver.

(2) The numbering scheme shall be defined in the Contractor's CMP subject to the Purchaser's agreement.

8. PTR NUMBERING

(1) Numbers shall be assigned to each PTR.

(2) The numbering scheme shall be defined in the Contractor's CMP subject to the Purchaser's agreement.

9. REQUIREMENT NUMBERING

(1) Requirements shall be assigned with a unique number.

(2) The numbering scheme shall be as described below and be documented in the Contractor's CMP subject to the Purchaser's agreement.

9.1. A-Level Requirements

(1) A-Level requirements are defined in the Purchaser Procurement Specification and identified by an 8 digit unique identifier containing a 2 letter code, representing the specification. For this Project it is "DR" followed by a 4 digit sequential number “000n” and a "/-". For example: DR0001/-.

(2) For a further breakdown of requirements, 2 digits containing a delimiter "-" and a sequential lower case letter will be inserted between the 4 digit sequential number and the "/-". For example: DR0001-a/-.

9.2. B-Level Requirements

(1) B-Level requirements shall be described in the SRS and IRS documents.

(2) B-Level requirement numbering shall comply with the rules applicable to A-Level requirements given above.

(3) The Contractor shall use a unique identifier which will be provided by the Purchaser to differentiate B-Level requirements from those at A-Level.

9.3. C-Level Requirements

(1) Where requirements are flowed down to Subcontractors and Vendors, these shall be described in Subcontractor PIDS, SRS and IRS documents.

(2) C-Level requirement numbering shall comply with the rules applicable to A & B-Level requirements given above.

(3) The Subcontractor shall use a unique 2 letter identifier which will be provided by the Contractor to differentiate B-Level requirements from those at C-Level.

9.4. Identification of Changes to Requirements

(1) Requirement changes shall be identified by inserting a sequential number instead of the hyphen.

a. Example: DR0001/1 or DR0001-a/1.

(2) This identification of requirement changes shall apply to requirement numbering at all levels.

9.5. Unique Identification of Items

(1) The Contractor shall apply the concept of Unique Item Identification as required by STANAG 2290 and the principles laid down in AUIDP-1.

9.6. Interface Numbering

(1) The **Logical Interface Reference (LIR)** consists of: two alphabetical characters to identify the validation Site followed by two digits, sequential within the site. The list of site identifiers will be provided by the Purchaser.

(2) The **Logical Interface Reference Extended (LIREX)** is a refinement of the LIR, and consists of:

a. 2 alphabetical characters to identify the “From Site”,

b. always followed by 3 digits, sequential with the site,

c. to which one alphabetical character is added, different for each remote entity (sharing the same 3 digits),

d. and to which a digit is added, different for each type of physical interface (sharing the same remote entity).

NATO Communications and Information Agency

RFQ-13639-ACCS

Statement of Work

for the Implementation of the

Enhancements to
NATO Integrated Air and Missile Defence System
Command and Control Communications

Voice Loop Communications

Logistics Support Concept

NCI Agency, Book II, Part 4, Section 1, Annex G

Rev. -, 30.05.2013

This Page Intentionally Left Blank.

REVISION SHEET

ECP No.	Revision	Date
INITIAL RELEASE	-	30/May/2013

This Page Intentionally Left Blank.

TABLE OF CONTENTS

1. INTRODUCTION 1
1.1. System Overview 1
1.2 1.4. Aim 1
2. SUPPORT CONCEPT DEVELOPMENT 1
2.1. Factors 1
2.2. Logistics Approach 1
2.2.1. Logistic Support 1
2.2.2. Military Requirements 1
2.2.3. Reliability, Availability, Maintainability and Supportability Requirements 2
2.2.3.1. General 2
2.2.3.2. Supportability 2
3. SYSTEM DESCRIPTION 2
3.1. VL System Operational Usage 2
4. MAINTENANCE PLANNING 2
4.1. Introduction 2
4.2. Hardware Maintenance Concept 2
4.2.1. General 2
4.2.2. Preventive Maintenance 3
4.2.3. Fault Management 3
4.2.4. Fault Repair 3
4.2.5. Mean Time To Repair 3
4.2.6. Administrative Logistics Delay Time 3
4.2.7. Configuration Management 3
4.2.8. VL System Supply Support 3
4.2.8.1. Supply Concept 3
4.2.8.2. Hardware Logistics Pipeline 4
4.2.9. Maintenance Support Post-PSA 4
4.3. Software Maintenance 4
4.3.1. Maintenance of Software Following PSA 4
4.4. Logistic Support Analysis 4
5. TECHNICAL DOCUMENTATION 5
6. TRAINING AND TRAINING SUPPORT 5
6.1. General 5
6.2. Training Plans 5
7. SUPPORT EQUIPMENT 5
8. WARRANTY 6
APPENDIX A : GENERAL PURPOSE TOOLS AND TEST EQUIPMENT 7

This Page Intentionally Left Blank.

1. INTRODUCTION

1.1. System Overview

(1) NATO has an Urgent Requirement, for a project which provides Voice Loop alerting capability between the NATO Combined Air Operations Centres (CAOC) Uedem (Germany) and Torrejon (Spain) and national Control and Reporting Centres (CRCs) across the NATO Area of Operations (AOR) This requirement has resulted from increased Areas of Responsibility for each CAOC, as a consequence of the new NATO Command Structure (NCS).

(2) The standardization of the required Air Policing Air C2 'execution procedures', under a single Air Command (AC) HQ at Ramstein Air base (Germany) and across the Northern and Southern Air Policing Areas (APAs), requires an Operational Voice Communications capability to provide robust Command and Control (C2) of NATINAMDS elements at the CAOCs and fall-back SADC facility at AC HQ Ramstein and subordinate CRCs.

(3) The Project will require the delivery of Integrated Logistics Support (ILS), Training, and deliverable documentation.

{*ILSISUP0*}

1.2 1.4. Aim

(1) The aim of this LSC is to define the NATO logistics policy for the maintenance and support of the 6A Voice Loop (VL) Project at the conceptual.

2. SUPPORT CONCEPT DEVELOPMENT

2.1. Factors

(1) The logistic support of the VL Project takes into account the following factors and constraints:

a. Whilst this LSC sets out a standard approach, with the aim of producing a robust support structure, it recognizes the mix of responsibilities for Operation & Maintenance (O&M), some being supported in principle by NATO Military Budget Committee (MBC) funds.

b. Manpower support requirements (in terms of numbers and skill levels) must be reduced as much as is practicable and be cost effective within any specific constraints identified by the Purchasers;

c. Any NATO operational and security requirements must be met;

d. Preventive maintenance should be reduced to the absolute minimum and should not interrupt operations.

2.2. Logistics Approach

2.2.1. Logistic Support

(1) The logistic support for the VL Project will be consolidated with existing hardware support contracts where possible.

2.2.2. Military Requirements

(1) The basic military and availability requirements which the logistic support of the systems procured under the VL Project has to support are prerequisites to the whole of the definition effort. These include the following:

a. Operational availability as identified by the Purchaser, based on reliability, maintainability and the Administrative Logistics Delay Time (ALDT) must be met by the Contractor;

b. Critical operations and the availability of equipment and systems should not be delayed by logistic support activities.

2.2.3. Reliability, Availability, Maintainability and Supportability Requirements

2.2.3.1. General

(1) The VL Project requirements regarding Reliability, Availability, Maintainability (RAM) and Supportability are provided in the VL Project Statement of Work (SOW) and Procurement Specification (PS). The System MTBF target figure is at least 4500 hours (in the case of MTBF, "System" is defined as all VL components, user devices and associated communications support equipment providing the VL capability.

2.2.3.2. Supportability

(1) The VL Project system will be designed to be logistically supportable for at least 10 years following the end of warranty.

(2) Support to any VL Project Purchaser Furnished Property (PFP) will be a Purchaser responsibility.

3. SYSTEM DESCRIPTION

3.1. VL System Operational Usage

(1) Operational sites will be capable of operating 24/7 and 52 weeks per year (i.e. continuous operation).

4. MAINTENANCE PLANNING

4.1. Introduction

(1) Maintenance Planning is the effort to identify, document, and establish an effective and economical way to perform the total range and quantity of maintenance tasks applicable to the end item. This activity also entails the identification of logistic resources required to support the maintenance tasks.

(2) The maintenance/support concepts for the VL Project hardware are described below.

4.2. Hardware Maintenance Concept

4.2.1. General

(1) Hardware Maintenance levels used in the VL Project are known as HL1/2, HL3. These skill levels are defined below.

a. Organizational Maintenance (HL1/2) is on-site Hardware maintenance, capable of being carried out by relatively low technical skill level personnel performing preventive maintenance and changing Line Replaceable Units (LRU) on the basis of diagnostic outputs. Remote fault diagnosis from the CAOC host site and in some cases – rectification – is foreseen as well. Where remote fault management is not feasible, technicians from the CAOC host site will travel to the remote site hand carrying relevant spares to perform maintenance tasks.

b. Where the fault is beyond the capabilities of HL1/2 technical support, (Intermediate Maintenance (HL3) activities will be performed by Support Site personnel (through on-site intervention).

c. Depot Maintenance (HL4) will be undertaken at commercial facilities. It will cover all hardware support activities that are not within the capabilities of HL1-3 technical support.

4.2.2. Preventive Maintenance

(1) Preventive maintenance requirements will be minimised and will have minimal effects on operations.

4.2.3. Fault Management

(1) Rapid and accurate fault diagnosis will be provided by BIT facilities and any Fault Management System (FMS).

4.2.4. Fault Repair

(1) Fault repair on-site will be HL1/2 maintenance and as required by on-site HL3 interventions by the Contractor in accordance with paragraph 4.2.1.

4.2.5. Mean Time To Repair

(1) Mean Time To Repair (MTTR) for hardware faults is the average elapsed time of corrective maintenance. For HL1/2 tasks, the MTTR should not exceed 30 minutes. For HL3 tasks, the target figure is 120 minutes.

4.2.6. Administrative Logistics Delay Time

(1) The Administrative Logistics Delay Time (ALDT) is the time the system/equipment is inoperable due to delays in maintenance that are attributable to administration and logistics delays. For the purpose of performing Ao calculations, the ALDT per hardware repair or software fault recovery is the sum of the time required to obtain the logistic resources (e.g. spares, tools and technician). It is calculated from the time the fault is reported to time of commencing the repair task. The ALDT for the VL system is estimated as listed in table 4.2.6-1, showing also the additional time needed when the fault arises at an unmanned site. The Contractor is responsible for providing sufficient spare parts to ensure the operational availability requirements can be met, taking account of ALDT.

Support Level	ALDT for Manned Sites
HL1/2	30 min
HL3	72 hrs
SL1/2	30 mins
SL3	72 hrs

Table 4.2.6-1 - ALDT for the VL System

4.2.7. Configuration Management

(1) Configuration Management (CM) requirements are stated at Annex F of the VL Project SOW. CM procedures will be established utilising NCI Agency approved.

4.2.8. VL System Supply Support

4.2.8.1. Supply Concept

(1) The Contractor shall be responsible for the provision at each site of initial spares in sufficient quantities to ensure that the operational availability is achieved; whilst taking into account the MTTR and ADLT for HL1, HL2 and HL3 defined in para 4.2.5. and 4.2.6.

(2) Serviceable spare parts held on site shall be sufficient as a minimum to maintain a 99% probability of replacing all LRUs which are expected to fail during any 7 day period without external support. This is to allow for a period of "closed-door" operations.

4.2.8.2. Hardware Logistics Pipeline

(1) VL system equipment that has failed at any site will be replaced and despatched for repair in accordance with procedures that have been implemented under the System Support arrangements.

4.2.9. Maintenance Support Post-PSA

(1) At PSA, the Purchaser site maintenance personnel will be responsible for HL1/2 activities on all the VL system equipment. Through the Purchaser, support contracts will provide HL3, HL4 and site intervention support as required.

4.3. Software Maintenance

4.3.1. Maintenance of Software Following PSA

(1) Software Maintenance levels used in the VL Project systems are known as SL1, SL2, SL3. The skill levels to undertake the tasks associated with this maintenance are described below:

a. SL1 are those functions/tasks in support of the on-site software that are within the capabilities of site maintenance personnel. This includes software failure recovery by the application of simple diagnostics, or site maintenance personnel initiated restart;

b. SL2 are those functions/tasks in support of the on-site software that are within the capabilities of a system manager;

c. SL3 (on-site intervention) comprises those functions/tasks in support of the on-site software that require specialist intervention. The tasks can be performed either by software personnel visiting the site or by remote diagnostics.

(2) After PSA of the first system, SL1/2 maintenance of all software other than COTS will be carried out at Purchaser facilities. The development contract will provide all necessary documentation, tools and training to support this level of maintenance of the software. The required maintenance tasks can be summarised as follows:

a. Configuration identification and configuration status accounting of delivered software;

b. Provision for error correction and changes of system parameters;

c. Evaluation, design, implementation and testing of software changes;

d. Production, documentation, testing and delivery of software releases to operational sites.

4.4. Logistic Support Analysis

(1) The Contractor will establish an Logistic Support Analysis (LSA) programme i.a.w. with MIL-STD-1388-1A and the requirements as stated in the SOW. The Contractor's LSA programme is to be a progressive effort, performed incrementally and in parallel with the system design process. The LSA strategy focuses on assessing and influencing the supportability characteristics of the evolving design, and defining and optimising the logistic support organisation and logistic products to be provided. The LSA process will address supportability of both software and hardware system elements.

(2) The Purchaser will maintain a copy of the Contractor's LSA data throughout the contract period. LSA reports provided by the Contractor for Purchaser approval will be as defined in the Contract Data Requirements List (CDRL).

(4) LSA Data elements required for the VL Project have been selected from the Data Element Definition list provided in MIL-STD-1388-2B and are specified on DD Form 1949-3 – Appendix A to that document. The Contractor will review the data element selection throughout the contract

period and will propose any necessary changes, subject to Purchaser approval. Values for some of the data elements will be required from the Purchaser.

5. TECHNICAL DOCUMENTATION

(1) All VL Project technical documentation will be provided by the Contractor in the formats as follows:

	Text-Formats		Graphic-Formats
1.	HTML	1.	SVG
2.	Microsoft Word	2.	Visio
3.	Adobe PDF		

Table 8.4.-1 Technical Documentation Formats

(2) The technical documentation will detail all information pertinent to the safe and correct Operation, Support and Maintenance of the system, to be conducted by site personnel.

6. TRAINING AND TRAINING SUPPORT

6.1. General

(1) The basic training concept is for the system implementation Contractor to develop training courses and to train a cadre of user personnel. It must be emphasized that the training scope is limited to "conversion training" of personnel already trained in relevant skills on existing systems. The VL Project system training will encompass all hardware and software site functions. All follow-on training will be a user responsibility.

(2) The Contractor will develop courses and train site personnel to undertake SL1/2 and HL1/2 tasks.

(3) Courses and student course material will be developed in the UK English language. Courses will be presented in English and all handouts will be in English.

6.2. Training Plans

(1) The Contractor will propose a Training Plan which describes his approach to the training of Purchaser site personnel. The Plan will describe training development and how the effort will be managed.*{ILSTRAP0}*

6.3. Training Documentation and Equipment

(1) Classroom training will use standard commercial training equipment. Training and training documentation shall make use of the Project technical documentation. Any software used to prepare and needed to maintain the course material or instructors' material will be regarded as delivered course material. Each student will receive a set of course material during all courses. Instructors will also receive a complete set of the Contractor instructor material used to prepare and deliver their courses.

7. SUPPORT EQUIPMENT

(1) General Purpose Tools/Test Equipment (GTTE) will be provided by the sites. At Appendix A of this documentation is a list of GTTE and support equipment that are typical of those used by the Purchasers. The Contractor will use this list of GTTE to determine any additional tools and test equipment (hereby referred to as Special to Type Tools/Test equipment (STTE)) and support equipment required to support HL1/2 and SL1/2 maintenance.

(2) All STTE, jigs, fixtures, and material handling equipment required for HL1/2 and SL1/2 will be provided by the Contractor.

(3) The Contractor will be required to identify and document in the LORA all required support equipment including GTTE, STTE jigs, fixtures, and material handling equipment required to support HL1/2 and SL1/2 maintenance.

8. WARRANTY

(1) All items procured under the VL Project will be covered by warranties. This includes hardware, software and documentation. Warranties provided by COTS suppliers will be passed through to the Purchasers, enhanced if necessary to meet the minimum one year warranty requirements.

(2) For hardware and software, warranty will commence at provisional acceptance of each site. Under NATO acquisition contracts, this is defined as PSA, and for documentation it will coincide with final acceptance of the corresponding documentation.

(3) The Contractor will rectify all deficiencies (deficiencies are defects in the product, which were known about prior to provisional acceptance, but which the Purchaser has agreed may be rectified during the warranty period) and newly discovered defects communicated to him during the warranty period, even if this means working beyond the warranty period. This includes identifying and providing any resulting needs, such as technical documentation (including Training documentation) changes, hardware changes and software changes.

APPENDIX A : GENERAL PURPOSE TOOLS AND TEST EQUIPMENT

Item #	Item Description
1.	Digital Multimeter
2.	Heat Gun Bosch
3.	Wire wrap tools
4.	Hexagon wrench key
5.	Set of .25 drive metric socket & spanners
6.	Set of .50 drive metric socket & spanners
7.	Set of .25 drive standard socket & spanners
8.	Set of .50 drive standard socket & spanners
9.	Soldering Station TCP-3 24V soldering iron 45W temperature controlled Soldering iron tips: 0.8mm - 3.2mm Mini desolder tool SR3A
10.	Magnifier illuminated Free standing base for magnifier Glare free lamp assembly Heavy table base for glare free lamp assembly
11.	Solder sucker with nozzle
12.	De-soldering braid
13.	Pinch off pliers lockgrip
14.	Insulated comb/pliers 150mm
15.	Slip Joint Pliers
16.	Snipe nose pliers
17.	Wire stripper
18.	Diagonal cutters
19.	Adjustable Wrench
20.	Water pump pliers
21.	Electricians scissors
22.	CK 9040 electricians knife
23.	Metric Allen s/drivers: 99-71mm & 99-72mm
24.	Metric Allen hex s/drivers: 99-73mm to 99-77mm
25.	Screwdriver - pozidrive Nø 1
26.	Screwdriver - pozidrive Nø 2
27.	Screwdriver - pozidrive Nø 3
28.	Screwdriver - 5.6mm blade
29.	Screwdriver - 9.0 mm blade
30.	Jewellers screwdrivers
31.	Screwdriver - gripping
32.	Inspection mirror
33.	Adjustable wrench: 100mm & 200mm
34.	TCT 1 5 way crimping tool

NATO Communications and Information Agency

RFQ-13639-ACCS

Procurement Specification

for the Implementation of the

Enhancements to
NATO Integrated Air and Missile Defence System
Command and Control Communications

Voice Loop Communications

NCI Agency, Book II, Part 4, Section 2

Rev. – 30.05.2013

This Page Intentionally Left Blank.

REVISION SHEET

ECP No.	Revision	Date
Initial Issue	Original	30.05.2013

This Page Intentionally Left Blank.

TABLE OF CONTENTS

1. SCOPE 1
1.1. Identification 1
1.1.1. General 1
1.1.2. Naming and Conventions 1
1.2. System Implementation 2
2. APPLICABLE DOCUMENTS 2
3. SYSTEM REQUIREMENTS 2
3.1. System Definition 2
3.2. Voice Loop System Requirements 3
3.2.1. General System Description 3
3.2.2. Voice Loop Functionality 4
3.2.2.1. Signalization in Voice Loops 6
3.2.3. VoIP Telephone Functionality 7
3.2.4. Voice Loop System Elements 8
3.2.4.1. VL User Terminal 8
3.2.4.2. VL Administration Console 9
3.2.4.2.1. VL System Management Tool Functions 10
3.2.4.3. VL LAN Switch 11
3.2.4.4. VL Router 11
3.2.4.5. VL Control Unit 11
3.2.4.6. VL Recording and Playback Capability 11
3.2.5. VL System Site Configuration Types 12
3.2.5.1. CAOC Configuration 12
3.2.5.2. SADC Configuration 12
3.2.5.3. CRC Configuration 13
3.2.6. Interface with Bearer Equipment 13
3.2.7. Administrative Functional requirements 14
3.2.7.1. Perpetuity of Voice Loop Channels 14
3.2.7.2. Presence Information 14
3.2.8. Non-Functional requirements 15
3.2.8.1. Voice Over IP Standards 15
3.2.8.2. Codecs 15
3.3. Design and Construction 15
3.3.1. Hardware Characteristics 15
3.3.1.1. Materials 15
3.3.1.2. Construction 17
3.3.1.3. Cabling and Connectors 18

3.3.2. Electromagnetic Interface and Electromagnetic Radiation 19
3.3.3. Hardware 20
3.3.4. Interchangeability 21
3.3.5. Human Engineering 21
3.3.6. System Security 22
3.3.6.1. Communications Security 22
3.3.6.1.1. Confidentiality 22
3.3.6.2. TEMPEST 22
3.3.6.3. Accreditation 23
3.3.6.3.1. Evaluation Procedure 23
3.3.7. Power Supply Requirements 23
3.3.7.1. General 23
3.3.7.2. Power Entry in Equipment 24
3.3.7.3. Earthing 25
3.4. Equipment Health and Safety 25
3.4.1. Mechanical Safety 26
3.4.2. Electrical Safety 26
3.4.3. Equipment Functional Safety 27
3.5. Site Preparation 27
3.5.1. Site Adaptation 27
3.6. System Quality Factors 28
3.6.1. Availability 28
3.6.2. Reliability 28
3.6.3. Maintainability 28
3.6.4. Quality of Service 29
3.7. Language 30

1. SCOPE

(1) This Procurement Specification (PS) identifies Purchaser Functional and Performance requirements for Voice Loop Communications System between the Air Command and Control (C2) elements of NATO Integrated Air and Missile Defence System (NATIAMDS). The "Enhancements to NATO Integrated Air and Missile Defence System Command and Control Communications – Part A – Voice Loop Communications" will be hereinafter referred as the Project. The Project will install all necessary hardware and software to set up the Voice Loop (VL) System at Purchaser designated entities.

(2) Appropriate levels of site engineering effort will be required to install the elements of the VL System into the NATINAMDS Air C2 sites.

1.1. Identification

1.1.1. General

(1) This document is the Procurement Specification (PS) for the Project and is published and maintained by the NATO Communications and Information Agency (NCI Agency).

1.1.2. Naming and Conventions

(1) Whenever requirements are stated herein to "include" a group of items, parameters, or other considerations, "include" will be construed to mean "include but not limited to".

(2) Whenever a section, task or paragraph is referenced, the reference will be construed to include all subordinate and referenced paragraphs.

(3) The term "Contractor" includes the entire Contractor/Subcontractor consortium.

(4) Unless explicitly stated, the Project Procurement Specification order of requirements does not specify a priority order in which tasks must be carried out.

(5) Where referenced standards, specifications, etc. refer to "Government" this means "Purchaser".

(6) Modification of Project Procurements Specification paragraphs will be either:

a. Additional paragraphs, with a new sequential paragraph number;

b. Replacement (in whole or in part) of a paragraph having the same number as the original Project Procurement Specification paragraph.

(7) Modification of Project Procurement Specification requirement ("shall" statements) will be either:

a. Additional requirements/constraints (with a new "shall" statement identifier);

b. Replacement (in whole or in part) of referenced Project Procurement Specification requirements.

(8) Deletion of Project Procurement Specification requirement ("shall" statements) will result in the requirement number being annotated "SPARE". The requirement number will not be reused.

(9) An unqualified paragraph or annex, refers to a paragraph or annex in the Project procurement Specification. An unqualified Statement of Work (SOW) reference, refers to the Project SOW.

(10) The paragraph listed within this document with titles only (i.e. no text) are for the convenience of the reader.

Draft

(11) The project includes Purchaser Furnished Property (PFP), which is in accordance with NCI Agency, Book II, Part 4, Section 2, Annex A.

(12) The following terminology is used in this specification when referring to PFP equipment:

"shall have";

"shall provide";

"shall be equipped with";

"shall contain";

"shall include".

(13) "Shall" statements are binding requirements. "Should" and "may" statements are not mandatory provisions. "Will" statement is either a requirement that does not have to be verified or simply future tense statement.

(14) "Essential" when used in the body of text is referenced to a system, subsystem, item, Line Replacement Unit (LRU), or Shop Replacement Unit (SRU), if malfunctions cause system's degraded performance or complete system failure.

1.2. System Implementation

(1) The detailed engineering scope for the Project is described in the Project SOW, NCI Agency Book II, Part 4, Section 1 .

2. APPLICABLE DOCUMENTS

(1) The applicable and reference documents specific to the Project Procurement Specification are listed in the Annex "Applicable Documents" , NCI Agency, Book II, Part 4, Section 3, Annex B.

3. SYSTEM REQUIREMENTS

3.1. System Definition

(1) The transition to the new NATO Command Structure (NCS) has created additional communication requirements between the legacy Air C2 elements across the Northern and Southern Regions of NATINAMDS.

(2) This "Urgent Requirement" (UR) project is to field an Initial Operational Capability (IOC) Voice Loop (VL) system from mid-2013 and be equipped to all sites concerned by the end of Quarter 2 of 2014.

(3) The VL system elements are to be installed in 38 sites situated across 22 ally countries in Europe. As an option, the VL system may also be required to be installed at an additional four sites in France.

(4) There are three types of the sites to be considered within the specific site configuration type. These are as follows:

a. Air Command (AC) Fall-back Static Air Defence Centre (SADC);

b. Combined Air Operations Centre (CAOC);

c. Control and Reporting Centre (CRC).

(5) Provision of a high quality assured VL system with minimum bandwidth requirements is essential as part of the delivery of this project.

(6) The installation of the VL system at the sites concerned will disturb neither existing site configuration nor site operational activities.

(7) The VL system should make use of the existing, NATO/nationally (military)-owned communications bearers to the maximum extent.

(8) The VL system's configuration and equipment shall meet NATO/national security regulations as detailed in the Project SOW.

3.2 Voice Loop System Requirements

3.2.1 General System Description

VL0001/- VL system main functionalities

The VL system shall provide 2 main functionalities for all system users. These are as follows:

a. Voice Loop Functionality;

b. VoIP Telephone Functionality.

VL0002/- VL system compatibility

The VL system shall be separated from other communication systems, except the dedicated communications bearers, available at the installation sites. This requirement should not prevent the system from being able to be integrated within other Purchaser-owned communication systems in the future.

VL0003/- VL system interoperability

The VL system shall be fully interoperable with NATO General Communications System (NGCS). The VL system site installations shall be interfaced with the Purchaser Furnished Property (PFP) multiplexer.

VL0004/- Encryption

The VL system shall provide unencrypted voice communications across the VL system. This requirement should not prevent the system from being upgradeable to an encrypted system in the future.

VL0005/- COTS Equipment

The VL system shall be based on COTS hardware and software to the maximum extent. This requirement does not prevent the contractor from developing and installing dedicated software applications if required, e.g. voice loop management/control software.

VL0006/- Installation sites

It is a Project requirement that, the VL system is to be installed in a number of pre-determined sites (see the sites list in the Annex D to Project SOW); The Purchaser retains the right to increase the number of sites at which the VL system is to be located, once agreed with the Contractor.

VL0007/- Network protocol standard

The IP addressing within the VL system shall be IP version 4 (IPv4). The VL system shall be easily upgradeable to IP version 6 (IPv6) in the future.

VL0008/- Types of installation sites

The VL system elements shall be installed in the following types and numbers of sites:

a. Fall-back SADC x 1;

b. CAOC x 2;

c. CRC x 35 + 4 (option).

VL0009/- System domains

The VL system shall be organized within 2 geographical domains, one for the Northern Region (NR) sites (mixed types: Fall-back SADC, CAOC and CRCs) and the second one for the Southern Region (SR) sites (mixed types: Fall-back SADC[1], CAOC and CRCs).

VL0010/- Site functions

The entire VL system shall provide voice loop and telephone functionalities for use at the CRCs, CAOCs and fall-back SADC (when activated). The SADC shall be activated to replace either of the CAOC facilities; however NOT both simultaneously.

VL0011/- Recording

The VL system shall enable automatic recording of each VL channel on the dedicated storage co-located with system management facility at the CAOC/SADC site.

VL0012 Lifecycle and O&M costs

The VL system should have minimal annual Operational and Maintenance (O&M) costs with the expected lifecycle of 10 years. Annual software/hardware licence fees are to be kept to the lowest value.

VL0013/- Number of CAOC/SADC users

The VL system shall enable up to 10 operator role instances at a CAOC/SADC with access to all of the VL channels available within the VL domain.

VL0014/- Number of CRC users

The VL system shall enable up to 12 operator role instances at each CRC with the access to all of the VL channels available within the parent VL domain.

VL0015/- COTS upgradeability

The VL system must be upgradeable for future COTS capability and should make the best use of VoIP technological capabilities and must meet NATO Communication STANAGs.

VL0016 - VL0019 - SPARE

3.2.2 Voice Loop Functionality

VL0020/- Voice Loop features

[1] There is a single Fall-back SADC which will provide fallback functionality as a single entity for both the NR and SR CAOC.

Voice Loop functionality within the VL system shall provide an instantaneous, permanently active (24/7) voice communications channels which can be utilized by a VL system users/participants. “Instantaneous” means that no channel’s initialization (dialling) is necessary when a user needs to broadcast a voice message. Any pre-dialled telephone numbers or voice conference calls that require circuit initialization are deemed unacceptable as the target project solution.

VL0021/- VL broadcast I

The VL system shall be used to broadcast specific voice alert messages and orders from the CAOC (SADC) to subordinated CRCs within a VL domain.

VL0022/- VL broadcast II

The VL system shall enable any CRC to provide individual voice responses, warnings and reports to the parent CAOC and/or other CRCs present on the loop channel.

VL0023/- VL channels quantity

The VL system shall provide (but not limit to) 4 VL channels within each CAOC’s VL domain.

VL0024/- VL channels configuration replication to SADC

The VL channels configuration shall be replicated at the fall-back SADC facility. Given the fallback capability required at the SADC in the event of a CAOC entity failure; CAOC VL system reconfiguration must be replicated at the fall-back SADC

VL0025/- VL channels roles

The VL system shall provide the following loop channels within each CAOC’s domain:

a. CH1 – Command and Control (C2) Loop;

b. CH2 – Air Surveillance (AS) Loop;

c. CH3 – Alerting (AL) Loop;

d. CH4 – Training/HIP Pocket (TR) Loop.

VL0026/- Users load for VL channel

The VL system shall allow up to 150 simultaneous users, located at different sites within the VL domain, to monitor a single VL channel. The system shall provide an alert to the CAOC’s VL system administrator when more than 150 users attempt to monitor a single VL channel.

VL0027/- VL channel use I

The VL system shall be configurable to allow all 12 VL users terminals at each CRC to monitor and/or transmit over an individual or multiple VL channels.

VL0028/- VL channel use II

The VL system shall be configurable to allow up to 10 VL user terminals at each CAOC or SADC to monitor and/or transmit over an individual or multiple VL channels.

VL0029 Single user transmission at one time

The VL system shall enable only one user at either the CAOC or CRC to transmit over a VL channel at one time. This capability will be over-ridden by an emergency override selection by another user.(VL0033/-)

VL0030/- VL channel information

The VL system shall provide a running total or the number of users actively monitoring a single VL channel at the CAOC/SADC VL administration consoles.

VL0031/- Number of VL channels available for user

Every VL user terminal shall have 4 (four) lines allocated, thus being able of handling 4 VL channels concurrently.

3.2.2.1 Signalization in Voice Loops

VL0032/- VL channel activation

Any participant of VL channel shall signal his activity by means of “push to talk” – PTT switch.

VL0033/- VL channel over-ride I

Individual VL channels shall be configurable to allow any of the user roles to over-ride an in-use VL channel in the event of an alerting emergency.

VL0034/- VL channel over-ride II

The CAOC/SADC operational role shall be able to over-ride and configure a VL channel in use by a subordinate CRC in the event of alerting emergency.

VL0035/- VL channel over-ride alert

The VL system shall enable users to be alerted, via an audio tone, that a VL channel alerting over-ride has been initiated by another user.

VL0036/- VL channel monitoring indication

The VL system shall provide a visual information to users; to display connectivity to an active VL channel.

VL0037/- VL channel status indicators

The VL system shall provide the visual queue to the users of the status that the operator has selected for the particular VL channel. The following status indications are mandatory:

a. Monitor Only;

b. Monitor and Transmit;

c. Channel in use (being Transmitted on)

d. Emergency Over-ride.

VL0038/- Mute audio alerts

The VL user shall be able to mute audio alerts only at his VL user terminal.

VL0039/- Initiation of transmission

The VL user shall be able to initiate the transmission over a single or multiple VL channels either via one of the following methods:

a. an user terminal handset with PTT;

b. an audio headset and microphone with PTT; or

c. a VL user terminal built-in loud speaker and microphone mounted with PTT switch.

VL0040/- VL channel monitoring by user

The user shall be able to monitor a single or multiple VL channels via telephone handset, audio headset or loud speaker equipped on the VL user terminal.

VL0041/- Volume control

The VL user shall be able to change individual volume levels for each of the audio end device interface (loud speaker, headset and phone handset).

3.2.3 VoIP Telephone Functionality

VL0042/- Telephone functions I

At every VL user terminal a rich set of the standard telephone functions shall be available.

VL0043/- VL user terminal extension number

Every VL user terminal shall have a distinct extension number for telephone functions, as a subset of the parent CAOC.

VL0044/- Telephone calls within VL domain

VL system users shall be able to make point-to-point telephone calls to any of the other users within the same VL domain.

VL0045/- Telephone calls across VL domains

VL system users shall be able to make point-to-point telephone calls to any of the other VL users across both VL domains.

VL0046/- Telephone calls between CAOCs

CAOC and SADC users shall be able to communicate with other CAOC or SADC users in both NR and SR VL domains.

VL0047/- Telephone functions II

The VL system should provide the typical telephone functions as follows:

a. HOLD – the system shall enable the users to place on hold and resume telephone calls to their individual VL user device / console.

b. REDIAL – the system shall enable the users to redial the latest dialed numbers.

c. TRANSFER – the system shall enable the users to transfer incoming calls to other user’s devices / consoles within their VL domain.

VL0048/- VL system separation from PABX

The VL user terminal must NOT be able to allow the calls to other PABX systems outside the VL system (as stated in VL0002).

VL0049/- Call lists and directories

A set of default call lists and phone number directories shall be preconfigured on each VL user terminal.

a. Preconfigured call lists shall be programmed only within the user’s VL domain;

b. Pre-programmed telephone numbers shall be adjusted to the specific role instances at each site, e.g. CRC Master Controller, CRC Fighter Allocator, CRC Track Production Officer, CAOC Duty Controller, CAOC Fighter Coordinator, CAOC Air Surveillance Officer etc.

c. The global telephone directory/list shall be available on each user terminal through the “Contact Menu”.

VL0050/- PTT protection

The telephone calls shall be PTT protected (microphone activated only when PTT switch is selected).

VL0051/- Media services

All media services such like Music on Hold, voice streaming etc. shall be provided locally to reduce the WAN bandwidth usage.

VL0052 – VL0059 - SPARE

3.2.4 Voice Loop System Elements

(1) The VL system installations should be built with the usage of different communications elements. The following paragraphs define the main types of the equipment that are necessary (but not limit) to provide the VL system.

3.2.4.1 VL User Terminal

VL0060/- VL user terminal set

The VL user terminal shall consist of (but is not limited to) the following elements:

a. The VL user terminal unit with built in loud speaker, microphone and PTT switch;

b. Inbuilt telephone handset with PTT switch;

c. The audio headset with microphone, volume control and PTT switch.

VL0061/- Terminal footprint

The VL user terminal should have a minimal footprint on the user work position desk. The dimensions shall not exceed (wide/deep/high) 36cm/30cm/30cm. The weight shall not exceed 5 kg. Typically an enhanced COTS IP phone with graphic user display will be sufficient.

VL0062/- Graphical User Interface

The VL user terminal shall be equipped with Graphical User Interface (GUI). E.g. LCD display with touch screen function would be preferable.

VL0063/- GUI functions and information

The VL user terminal GUI shall as minimum provide the following functionalities and information:

a. General purpose menu with general configuration and administration functions;

b. Status information (ID of the user logged, selected VL channels, terminals telephone/system number, system/operational time, alerts and warnings, others);

c. Volume control and voice mute;

d. VL channels selection menu;

e. Site VL users list and their status;

f. System VL users' directory and their availability status.

VL0064/- VL channels availability

Every VL user terminal shall have 4 VL channels allocated, thus being able of handling 4 communication channels concurrently.

VL0065/- Signalling protocols

VL user terminals shall use either SCCP or SIP as signalling protocol with the centralized IP PBX.

3.2.4.2 VL Administration Console

VL0066/- VL administration console set

The VL Administration Console shall consist of (but is not limited to) the following elements:

a. a PC desktop equipped with the latest technology CPU, minimum 2 GB RAM, minimum 320 GB HDD, read/write CD/DVD drive, PC Sound Card, PC Graphics card suitable to run VL Software;

b. TFT LCD computer screen with the diagonal minimum 19 inches;

c. standard QWERTY International PC type keyboard (101 keys);

d. standard PS-2 or USB computer mouse;

e. an audio headset with microphone, volume control and PTT switch.

VL0067/- Operating system

The VL administration console shall operate on windows-based operating system.

VL0068/- Operating system administration tools

The VL administration console shall contain all required system administration software and tools to perform necessary routine system administration activities.

VL0069/- VL system management tools

The VL administration console shall contain all required VL system dedicated management tools to reconfigure, control and monitor the VL system.

VL0070/- VL system administration tools

The VL administration console shall contain all required VL system dedicated administration tools to perform all necessary system administration activities of the VL system.

VL0071/- User accounts and profiles

The VL administration console shall have a password protected role instance user account with two access profiles. There shall be at least the following types of predefined profiles:

a. System Administrator with the access to all system and VL system administration tools and VL system management tools as indicated in the requirements VL0068, VL0069 and VL0070;

b. System Operator with the access solely to the set of VL system management tools, as indicated in the requirement VL0069.

3.2.4.2.1 VL System Management Tool Functions

VL0072/- VL system status information

At the CAOC and SADC sites, the operators shall be able to view the status of all participants within a single VL channel, in a single, scrollable master display. The full information shall be available in the display of the VL administration console and the simplified information shall be available on the VL user terminal.

VL0073/- Print out capability

The VL System administrator shall be able to print out by means of a colour printer, system reports, fault reports and screen shots as well as print out system configurations, site user lists and system telephone list/directories.

VL0074/- VL channel participation configuration

At the CAOC and SADC sites, the operators shall be able to easily configure functional role participants to each individual VL channel. It shall be possible to select and deselect any participants of an active VL channel.

VL0075/- Unserviceabilities

In the event of an individual VL user terminal at a CRC becoming unserviceable, the CAOC/SADC operators shall be able to exclude an individual VL user terminal, or a group of VL user terminals from an active VL channel to prevent any unserviceabilities from denying the VL channel to other VL users.

VL0076/- VL channel participant enabling I

At the CAOC and SADC sites, the operators shall be able to easily reconfigure VL participants to re-join a particular VL channel. Simply, it shall be possible to connect, disconnect or reconnect any participant at any time without the system performance decreasing or requiring re-initiation.

VL0077/- VL channel participant enabling II

Reconfiguration and participation of a VL channel participant shall be achieved through simple tick [X] box selection of a window drop down type menu at the VL administration console.

VL0078/- SADC activation

In the event of SADC being activated, CAOC operators at SADC site shall be able to activate and control either Northern Region (NR) domain or Southern Region (SR) domain.

VL0079/- Replication of CAOC configuration to SADC

Configuration changes to VL system at either CAOC (within NR or SR domain) shall be replicated to the fall-back NR/SR VL control unit at the fall-back SADC.

VL0080/- VL channel status summary

The system shall enable a summary of the VL channel status on one screen or page, allowing for quick analysis of the situation.

3.2.4.3 VL LAN Switch

VL0081/- VL LAN switch

The VL LAN switch shall be COTS LAN switch proved for professional/military applications.

VL0082/- Quantity of LAN ports

The VL LAN switch shall be equipped with minimum 16 LAN Ethernet ports.

3.2.4.4 VL Router

VL0083/- VL router

The VL router shall be the COTS router proved for professional/military applications.

3.2.4.5 VL Control Unit

VL0084/- VL control unit I

The VL control unit shall be either a dedicated software application or hardware with dedicated software application that will setup, maintain and control the VL system within the VL domain.

VL0085/- VL control unit II

The VL control unit shall enable the communications (both voice loop and telephone functionalities) among the VL system sites within the VL domain.

3.2.4.6 VL Recording and Playback Capability

VL0086/- Recording capability

The VL system shall enable automatic audio recording of each VL channel on dedicated storage, collocated with the VL system control unit or VL administration console at the CAOC/SADC site.

VL0087/- Period of voice data storage

The VL system shall enable VL data to be stored for 35 calendar days, before the system over writes stored VL data.

VL0088/- Playback capability

The VL recording system shall enable selected VL data recordings to be played back, whilst continuing to record current operational VL data. The system shall enable an operator at the CAOC/SADC to playback selected data by date and time criteria of a single VL recording via an audio player device/application.

VL0089/- Date and time labelling of recorded data

The VL recording system shall system timestamp each VL recording period with a date and time label.

VL0090/- Storage to removable media I

The VL recording system shall enable an individual or multiple selected VL data record(s) to be copied to a removable data storage media. Data storage media (CD/DVD) shall be able to use a standard Microsoft Audio Player to listen to the stored VL audio data.

VL0091/- Storage to removable media II

All removable media VL data copies recorded to CD/DVD, shall be one time write use, so that once a VL data transfer session has been finalized. The data shall be unable to be edited, tampered with. E.g. write only DVD/CD option. No re-write capability. (Multiple copies of the same recording session can be produced).

VL0092 – VL0099 - SPARE

3.2.5 VL System Site Configuration Types

(1) There are 3 different types of site configurations depending on the site role within the VL system. They are described in the following sub-paragraphs.

3.2.5.1 CAOC Configuration

VL0100/- VL system CAOC configuration

The VL system configuration at CAOC shall consist of the following elements:

a. VL user terminals configured for CAOC operators.

b. 2 x VL LAN switches (one operational and the second on for redundancy).

c. 2 x VL routers (one operational and the second one for redundancy).

d. 2 x VL administration consoles.

e. 1 x VL control unit.

f. 1x VL recording and playback capability.

3.2.5.2 SADC Configuration

VL0101/- VL system SADC Configuration

The VL system configuration at SADC shall consist of the following elements:

a. 10 x VL user terminals configured for CAOC operators.

b. 2 x VL LAN switches (one operational and the second on for redundancy).

c. 2 x VL routers (one operational and the second one for redundancy).

d. 2 x VL administration consoles (if necessary to manage 2 separate domains).

e. 1 x VL control unit. If necessary for operate in either of the VL domain 2 x VL control unit may be applicable to preconfigure each VL domain separately.

f. 1x VL recording and playback capability.

3.2.5.3 CRC Configuration

VL0102/- VL system CRC configuration

The VL system configuration at CRC shall consist of the following elements:

a. 12 x VL user terminals configured for CRC operators.

b. 1 x VL LAN switch.

c. 1 x VL router.

3.2.6 Interface with Bearer Equipment

(1) The VL system shall make use of the PFP Communications bearer – NATO General Communications System (NGCS) and its features to maximum extent.

(2) Each of the sites concerned is equipped with the general purpose multiplexer that shall be the interfacing point for VL system site installation. At present, the site multiplexers are integrated into NGCS via ISDN E1 lines.

(3) NGCS is currently being upgraded by NATO to fully IP network, which will result in integration of the multiplexers into the NGCS via IP type link. This integration will result in more flexible use of the whole network and therefore, the planned VL solution should be based around IP connectivity in order to account for the ongoing NGCS upgrade. Many National Defence Networks (NDNs) are still based on ISDN communications.

(4) Currently the fielded multiplexers **are not** equipped with the interface adapters (cards) dedicated to interfacing with the proposed VL system elements.

(5) The requirements below references how the VL system shall be routed/interfaced with the NGCS.

VL0103 Interface points identification

The Contractor shall identify all NGCS interfacing equipment (e.g. multiplexers), their type and characteristics during the Contractor's site surveys.

VL0104/- Multiplexer interfacing adapter cards or connection requirements and delivery

As part of the Site Survey, the Contractor is to determine the required connectivity hardware (adapter cards), to enable connection of the VL equipment to the PFP multiplexers. The Contractor shall procure and provide to all sites concerned, the appropriate type and number of adapter cards, to enable VL to megaplexer connectivity.

VL0105/- Multiplexer interface adapter card site installations

As part of the Site Survey, the Contractor shall coordinate with the local site communications engineers/technicians the installation of the adapter cards into the multiplexers. Any deficiencies in enabling the necessary installation of the adapter cards are to be reported to the Purchaser in the Post Site Survey Report. Reconfiguration of the PFP multiplexer equipment remains the Purchaser responsibility.

VL0106/- Determination of required bearer and PFP parameters

The Contractor shall determine and inform the Purchaser how the proposed solution will make use of NGCS network, including all expected bandwidth and configuration requirements. These VL system requirements shall be presented to Purchaser together with the Contractor's bid.

3.2.7 Administrative Functional Requirements

3.2.7.1 Perpetuity of Voice Loop Channels

VL0107/- VL channels continuity

The VL system shall ensure that all configured VL channels are present at all times, except when the system is deselected for maintenance activities by a CAOC/SADC System administrator.

VL0108/- VL channel initialization

The VL system shall ensure that VL channels do not require circuit initialization prior to the actual voice communication taking place. Initialization of pre-programmed telephone calls (Voice Conference Calls) to a number telephone numbers is NOT acceptable as a technical solution for Voice Loop functionality of VL system. The voice conference calling capabilities are deemed NOT acceptable as the expected project solution.

3.2.7.2 Presence Information

VL0109/- Presence information

Information about the status and activities of any participant in the VL system is called “Presence Information”. The VL system shall enable the CAOC and SADC VL system administrator and operational VL users to display presence information on the VL administration console, on a single scrollable display.

VL0110/- Presence information print out

The VL system shall enable the CAOC and SADC VL system administrator and operational VL users to print out presence information on the VL administration console, using a colour printer.

VL0111/- Information about participants

The VL system shall provide presence information about any participant of the VL channels available.

VL0112/- Presence information content

The presence information shall contain at least the following distinctions:

a. User identification, system number, role and location;

b. VL user terminal availability;

c. Participant connected / not connected to the VL channel;

d. Participant holds the VL channel / participants actively listen;

e. Participant speaking / not speaking.

VL0113/- Presence information display

The presence information shall be made available at least at the following places:

a. VL system administration console (about all the users available within the VL domain);

b. VL user terminal (about the logged user).

3.2.8 Non-Functional Requirements

VL0114/- IP routing

The system shall make use of full IP routing and addressing to enable the communications infrastructure to be embedded within NATO communications systems.

VL0115/- IP PBX cluster architecture

The IP PBX cluster architecture shall be set up with cluster over WAN where all three master sites (CAOCs and SADC) use their local CUCM cluster nodes for call control and media services.

3.2.8.1 Voice over IP Standards

VL0116/- VoIP standards

The VL system shall make use of the following VoIP standards to ensure future compatibility with existing and/or future Communication systems utilized by purchaser:

a. Calling/connect telephone number – RFC 3261;

b. Call forwarding – RFC 3261 / RFC C5359;

c. Call transfer – RFC 3261 / RFC C5359;

d. Call hold – RFC 3261 / RFC C5359;

e. Call priority – RFC 3261;

f. Call waiting – RFC 3261.

3.2.8.2 Codecs

VL0117/- Codecs

The target IP PBX system shall use the g711ulaw codec as standard for communications within the VL system.

VL0118 – VL0119 - SPARE

3.3 Design and Construction

3.3.1. Hardware Characteristics

3.3.1.1. Materials

VL0120/- Material Selection

a. The selection of materials for use in the VL system shall avoid toxic substances.

b. Furthermore, materials shall not significantly distort, discolour or change other properties during the specified life of the items when subjected to the environmental effects. c. The Contractor shall use recyclable

materials and should select printers and similar equipment that allow re-fill of cartridges for liquids and powders if system performance is not affected and costs are not increased.

d. In case equipment is to be provided with glass or other transparent material surfaces, the Contractor shall select, to the extent possible, COTS equipment with shatterproof and distortion-free glass or other transparent materials on surfaces.

e. The Contractor shall use shatterproof and distortion-free glass or other transparent materials on surfaces of items.

VL0121/- Specification of Electrical Cables

Cables shall be i.a.w. MIL-STD-454, Requirements 65, 66, 76, 71 and 69 for coaxial, multi-conductor, fibre optic, inter-unit and internal wiring, respectively or i.a.w. an equivalent specification of an internationally recognised standardisation organisation or i.a.w. an equivalent internationally recognised commercial standard.

VL0122/- Dissimilar Metal Selection

The selection and protection of dissimilar metal combinations shall be i.a.w. MIL-STD-889, Table I, assuming an industrial atmosphere, or if the equipment is to be located such that it is exposed to a marine atmosphere, compatible with that environment.

VL0123/- Protection of Metals against Corrosion

Metals liable to corrosion, which are used, shall have the appropriate metal finishing treatment i.a.w. the MIL-STD-171 finishes listed in table TVL001 "Metal Finishing".

Material	Qualification	Finish	MIL-STD-171 Finish Number
Large ferrous items such as shelters, tractors etc.	Pre-treatment for painting	a. Abrasive blasting finish or b. Phosphoric acid cleaning - followed by wash primer	4.1 4.4 5.2
Steel	Final finish for Corrosion Resistance	Cadmium plating with supplementary chromate	1.1.2.3
Steel	Finish prior to painting	Zinc phosphate base	5.1.1
Large structural aluminium alloy items	Finish prior to painting	a. Chromate chemical film or b. Wash primer	7.3 5.2
Aluminium	Corrosion Resistance or pre-painting.	a. Chromic acid anodic film or b. Sulphuric acid anodic film	7.1.1 7.2.1

Table TVL001 Metal Finishing

VL0124/- Organic Materials

Organic materials such as wood, which are used, shall be treated i.a.w. MIL-STD-171, finish 25.2 (where immersion in treatment is possible) or finish 25.3 (for surface treatment).

3.3.1.2. Construction

VL0125/- Modularity of Equipment

The VL system equipment shall be modular; each module to be removed from the system for repair or any other off-equipment maintenance shall be a Line Replaceable Unit (LRU), with the following characteristics:

a. its failure can be detected and indicated by a Built-in Test (BIT) system, in conjunction with technical manuals and general purpose test equipment,

b. it is easily accessed for replacement purposes,

c. it is easy to replace, through the use of a plug-in connector, screwed terminals or similar connectors,

d. it has minimal adjustment requirements, such as voltage level settings; adjustments may be carried out with the BIT or with general purpose tools and test equipment,

e. when only one LRU has failed, its replacement returns the system to full operational status within a given mean time from the time of failure.

VL0126/- Cabinets

LRUs shall be accommodated in cabinets or frames, except for work position LRUs, LRUs in transport cases and LRUs to be located outside cabinets and frames for specific reasons (e.g. printers).

VL0127/- If possible, the VL system elements, except of the VL user terminals, should be mounted within existing cabinets if the required space is available.

VL0128/- Cabinet Construction I

Cabinets that need to be closed shall be fitted with doors.

VL0129/- Cabinet Construction II

LRUs in cabinets shall be accessible using pull-out drawer slides, where equipment allows the fitting of such items and is necessary for accessibility.

VL0130/- Cabinet Overheating

The equipment in cabinets shall not overheat nor develop hot spots exceeding the normal operating condition temperature range, if doors are open for up to one hour for maintenance purposes.

VL0131/- LRU Removal

The system shall allow any LRU to be powered down and removed without causing temporary or permanent failure in any other on-line element.

VL0132/- Equipment Lubrication

All moving parts and bearings used in the equipment shall be either permanently lubricated or not require lubrication more than once per year which will not interrupt system operation.

VL0133/- Cabinets and Frames Rigidity 1

The structural strength and rigidity of the cabinets and frames shall be such that normal handling and exchanging of LRUs does not result in any permanent deformation that would impair or interfere with the removal or addition of equipment and the ease of maintenance.

VL0134/- Cabinets and Frames Rigidity 2

The structural strength and rigidity of all cabinets shall be independent of any strength or rigidity provided by access doors.

VL0135/- LRU Access

All cabinets and frames containing LRUs shall be constructed and positioned such that access to the LRUs for all operating and maintaining purposes is possible from the front or rear or both as appropriate.

VL0136/- Cable Extenders and Retractors

Cable extenders and retractors or other cable management methods shall be provided for LRUs, which require removal for LRU replacement or accessibility, in cabinets so that when the LRU is moved on the slides, cables are kept free and clear of the moving equipment and operation is allowed in an open position.

VL0137/- Quick Release Latch Mechanism

Quick release latch mechanisms shall be provided for any LRU mounted on pull-out drawer slides, such that the LRU can be held in either the fully extended position or the fully closed position.

VL0138/- Access Doors Protection

Protection shall be provided to prevent damage to equipment caused by accidentally closing access doors while drawers are extended.

VL0139/- Protection against Incorrect Location

LRUs shall include devices (such as polarising keys) which prevent the insertion of the unit into incorrect locations.

3.3.1.3. Cabling and Connectors

VL0140/- Cables and Connectors

The VL system hardware shall include:

a. all interconnecting cables/connectors and interface cables/connectors from the equipment to the next purchaser-furnished distribution panel,

b. all necessary junction boxes, fittings, switches, circuit breakers,

c. any other distribution equipment between the Contractor provided equipment and the purchaser-furnished distribution panels.

The Purchaser will specify the location of the distribution panels.

VL0141/- Cable Routing

All cables entering or leaving equipment cabinets shall:

a. not hamper operations,

b. not hamper easy handling,

c. not create unsafe conditions,

d. not hamper access to other cables,

c. be grouped by functions and in different cable ducts.

VL0142/- Cable Routing

All cables entering or leaving equipment cabinets shall be routed beneath the floor (false floor principle) or according to the instructions provided by local site responsible personnel and determined during the Contractor's site survey.

VL0143/- Connector Characteristics 1

All connectors provided with the equipment shall be appropriately keyed to prevent interchanging of the mating connectors or improper insertion or be colour coded or otherwise marked to prevent interchanging of the mating connectors and improper insertion.

VL0144/- Connector Characteristics 2

Connectors shall be capable of being quickly and easily disconnected and reconnected.

3.3.2. Electromagnetic Interference and Electromagnetic Radiation

VL0145/- Minimised Emissions

All equipment shall be designed and constructed to minimise its electric and magnetic field emissions, and to minimise equipment susceptibility to electric and magnetic fields.

3.3.3. Hardware

VL0150/- Item Markings

Each discrete item that may be subject to removal, replacement or repair shall be identifiable by permanent and legible markings on the item which allow unambiguous correlation between each item, its configuration documentation and other associated data.

VL0151/- Visibility of Item Markings

Identification markings of items shall be readily visible to and readable by maintenance personnel without removal of the item or nearby items.

VL0152/- Characteristics of Markings

Markings shall be provided with facilitate assembly, replacement, connection, adjustment or operation of the various portions of the equipment. Examples of these include, at parts level: terminal strips and blocks, fuses, switches, adjustable controls, polarised parts and indicators.

VL0153/- Panel Markings

Markings shall be provided near panel facilities such as connectors, controls, indicators, jacks, keys and switches, clearly indicating the use or purpose of that part.

VL0154/- Marking of Sensitive Parts

Parts having highly sensitive characteristics and susceptibility to damage when removing them or to degradation in performance from environmental field forces shall be marked i.a.w. MIL-STD-130, Figure 3.

VL0155/- Identification of Removable Cables

Removable cables internal and external to work positions, cabinets, frames, shelters and transport cases shall be marked i.a.w. MIL-STD-454, Requirement 67 Section 4.3.3 and 4.11.

VL0156/- Cable Conductor Identification

Individual conductors within an assembly and individual cables within multi-cable interconnection harnesses shall be uniquely identified by means of colour coding or identification markers. If identification markers are employed, the spacing between the markers should be not more than 0.5 m.

VL0157/- Information Provided on Nameplate

Each item shall have a nameplate that contains the NATO supply code for the manufacturer, the NSN (if codification is required) and/or the manufacturer's part number, the equipment name, a serial number (starting with 1 and continuing consecutively up to the total number of such equipment units provided) and the Configuration Management information.

VL0158/- Updating of Nameplate Information

Nameplates shall have provision for showing configuration control information, by modification strike or similar action.

VL0159/- Nameplate Attachment

Nameplates shall remain attached to the equipment during its normal handling and operation.

VL0160/- Nameplate Labelling Standard

Characteristics and labelling of nameplates, markings and labels shall be i.a.w. MIL-STD-1472 Section 5.5.

VL0161/- COTS Item Manufacturers Labelling

Manufacturers' labelling on COTS items shall allow the identity of the item to be determined.

VL0162/- Packaging Manufacturers Labelling

Manufacturers' labelling on COTS items packaging shall allow the identity of the item to be determined.

VL0163/- Marking of Packaging and Containers

Marking of packaging and containers shall be i.a.w. STANAG 4281.

VL0164/- Marking Language

All markings and inscriptions on the equipment shall be clearly indicated in the English language.

3.3.4. Interchangeability

(1) Components, assemblies and parts should be standardised to provide maximum interchangeability and economies of scale in implementation and support.

VL0165/- Interchangeability of Items

All assemblies and associated parts having the same part number or same NSN shall be directly and completely interchangeable with respect to installation and performance (i.e. form, fit and function).

VL0166/- Adjustments on Replacement

A replacement LRU that is within the full range of dimensions and characteristics allowed by the design shall be usable without further selection and provide the full specified performance capability without adjustment, other than using normal operator controls.

3.3.5. Human Engineering

(1) The design of VL system should make maximum use of human engineering aspects to increase the effectiveness of operators and maintenance staff. In particular, automated support should be provided to reduce the numbers of operators required and to avoid human errors.

(2) The human engineering aspects of control and display integration should be i.a.w. the general criteria provided in MIL-STD-1472, Section 5.1.

(3) The human engineering aspects of the hardware maintainability should be i.a.w. the criteria provided in MIL-STD-1472, Section 5.9.

VL0167/- Audio Alarms

The design of audio alarms shall be i.a.w. MIL-STD-1472, Sections 5.3.2 - 5.3.4 and 5.3.6.

VL0168/- Visual Displays

The design of visual displays shall be i.a.w. MIL-STD-1472, Section 5.2 or i.a.w. equivalent national or international standards.

VL0169/- Speech Transmission

The design of speech transmission equipment shall be i.a.w. MIL-STD-1472, Section 5.3.7.

VL0170/- Speech Reception

The design of speech reception equipment shall be i.a.w. MIL-STD-1472, Section 5.3.8.

VL0171/- Noise Levels

Noise generated by VL system equipment in operation shall not exceed the levels specified in table TVL002 "Maximum Noise Levels".

	Maximum noise level in operational and maintenance areas	**Maximum noise level in all other areas**
Static Sites	55 dB(A)	65 dB (A)

Table TVL002 Maximum Noise Levels

3.3.6 System Security

3.3.6.1. Communications Security

(1) This section defines the security-related functions that are required in the communications area.

VL0172/- NATO Communications Security Standards

VL system shall adhere to the NATO Communications Security (COMSEC) policy as stated in (CM(2002)49, Security within NATO), and its supporting Directives and Guidelines.

3.3.6.1.1. Confidentiality

VL0173/- COMSEC Crypto

The VL system will be UNCLASIFIED and will not require the cryptographic protection. This shall not prevent the system to be encrypted in the future if required.

3.3.6.2. TEMPEST

(1) Sites will be categorised i.a.w. the zoning procedures indicated in SDIP-28 by the purchaser in the applicable Site Supplement.

VL0174/- TEMPEST Policy

The NATO policy on control of compromising emanations as laid down in MC 315 shall be followed.

VL0175/- TEMPEST Zoning

Equipment that is to be installed in the different zones shall meet the appropriate Tempest requirements of SDIP-27 or not be protected, as appropriate.

VL0176/- TEMPEST Installation

Installation of equipment shall be i.a.w. SDIP-29.

VL0177 – VL0179 - SPARE

3.3.6.3. Accreditation

(1) Accreditation will be carried out by the Purchaser.

3.3.6.3.1. Evaluation Procedure

(1) Evaluation of the VL system will be performed by an autonomous team of technically qualified personnel acting on behalf of the Security Accreditation Authority.

3.3.7 Power Supply Requirements

(1) Primary and standby power for the sites will be part of the Purchaser Furnished Facilities (PFF).

(2) All the following requirements apply for any type of power source, whether Contractor provided or from PFF sources.

3.3.7.1. General

(1) VL system should be designed to minimise power consumption.

VL0180/- Equipment Power Supply

The equipment shall operate without degradation when connected to a main power source of Alternating Current (AC), 230 V, 50 Hz.

VL0181/- Standard Power Outlets

Standard power outlets of the site and of Purchaser furnished generators shall be used to connect VL system equipment.

VL0182/- Power Fluctuations

VCE equipment shall be capable of withstanding fluctuations in primary power i.a.w. table TVL003 "Equipment Performance Requirements versus Condition of AC Input":

Con-dition	Conditions of Alternating Current Primary Output Power		See Note	Equipment Performance Requirements
I	Steady State Conditions			
	Voltage tolerance	±10% of nominal.	1	Equipment shall deliver and maintain specified performance (normal operation) when operating from any probable combination of indicated limits of voltage, frequency and wave form
	Voltage variation	±5% of nominal maximum		
	Frequency tolerance	±6% of nominal	1	
	Voltage wave form deviation factor	10% maximum	2	

Notes:

1 Variation at any constant load. Variations confined to within steady-state tolerance limits.

2 Open-circuit voltage, line-to-line and line-to-neutral.

Table TVL003 Equipment Performance Requirements versus Condition of AC Input

VL0183/- Peak Transient Currents

The peak transient current(s) of the equipment during start-up shall be not more than 6 times the nominal peak operating current with the transient current returning to not more than 110% of the normal peak operating current in not more than 8 s.

VL0184/- Power Factor

When operating under steady state conditions, the equipment shall be designed to present a power factor of not less than 80% leading or not less than 80% lagging.

3.3.7.2. Power Entry in Equipment

VL0185/- AC Power Panel

Each work position, equipment cabinet, other enclosure housing LRUs (including transport cases) and free-standing LRU with direct AC power input shall have the following controls and indicators:

a. a panel main power switch,

b. a panel lamp to indicate main AC power on.

VL0186/- AC Power Switches

Switches to apply AC power to cabinets, frames and other enclosures which house LRUs (including transport cases) shall operate on all conductors, except the ground of a 3-wire single-phase line with the resistance to ground for each AC line conductor in an equipment unit being not less than 1,000,000 Ohm.

VL0187/- Fuse Access

Fuses shall be easily accessible for replacement.

VL0188/- Current Overload Protection

Each cabinet, frame or other enclosure that houses LRUs (including transport cases) with direct AC input shall be provided with current overload protection i.a.w. MIL-STD-454, Requirement 8.

3.3.7.3. Earthing

(1) Earth ground (PFE) at static sites will have an impedance of maximum 5 Ohms within 0 - 10 GHz.

VL0189/- Earthing Requirements of Static Sites

The VL system hardware shall include separate safety and secure earthing cabling between the VL system equipment and the Purchaser furnished earthing system.

VL0190/- Earthing System

The earthing system shall be i.a.w. SDIP-29.

VL0191 – VL0199 - SPARE

3.4. Equipment Health and Safety

(1) The physical presence, operation and maintenance of the system shall pose no health or safety hazards to personnel. The following requirements apply to all equipment delivered under this project.

VL0200/- Safety design criteria

Safety design criteria of electronic equipment shall be in accordance with MIL-HDBK-454A, Guidance 1.

VL0201/- Danger materials

Materials containing known carcinogenic substances, radioactive materials or mercury shall only be used with the prior authorization of Purchaser, with the exception of Radium, which is not to be used to achieve self-luminosity.

VL0202/- Equipment warning labels

Equipment warning labels shall be attached wherever there is any potential electrical, chemical, electromagnetic radiation or heat hazard or a potential hazard caused by human contact with materials, particularly when removal of covers will expose the hazard.

VL0203/- Liberation of gases and fumes

Materials used under the specified environmental and service conditions, or as a result of heating due to conflagration, shall not liberate gases, which combined with the atmosphere to form acid or corrosive alkali fumes.

VL0204/- Liberation of toxic fumes

Materials used under the specified environmental and service conditions, or as a result of heating due to conflagration, shall not liberate toxic fumes, which would be detrimental to the performance of the equipment or health of personnel.

VL0205/- Liberation of explosive gases

Materials used under the specified environmental and service conditions, or as a result of heating due to conflagration, shall not liberate gases that produce an explosive atmosphere.

VL0206/- Materials features in different conditions

Materials, including paint finishes, shall be non-combustible under the conditions of atmosphere, pressure and temperature specified for the equipment, in accordance with MIL-HDBK-454A, Guideline 3.

VL0207/- Fungus-inert materials

Materials shall be chosen from the list of fungus-inert materials (except the asbestos) specified in MIL-HDBK-454A, Guideline 4, Group 1.

VL0208/- Fungus nutrient materials

If items, which contain fungus nutrient materials as listed in Group II of MIL-HDBK-454A, Guideline 4, being supplied by the Contractor, shall past the tests defined in MIL-HDBK-454A, Guideline 4, paragraph 4.4.

VL0209/- Ozone level generated by the equipment

In a room with installed equipment, the ozone generated from the equipment shall not exceed 0.02 mg of ozone per cubic meter of air, taking into account the given volume of the room and the given air flow for air conditioning purposes.

VL0210/- Asbestos

The equipment shall not contain any asbestos materials.

VL0211/- Glass fiber materials

Glass fiber materials shall not be used as the outer surface or covering on cables, wire or other items where they may cause skin irritation to operating personnel.

3.4.1 Mechanical Safety

VL0212/- Rotating and moving parts

Any rotating or other moving parts such as ventilators, blowers and drive belts shall be shielded or protected adequately to prevent accidental contact by and injury to any personnel during the operation and maintenance.

VL0213/- Edges and corners

Projecting and overhanging edges and corners shall be rounded.

3.4.2 Electrical Safety

VL0214/- Earth connection point

All equipment shall be connected to an earth connection point consistent with national safety legislation.

VL0215/- Earth Leakage Circuit Breakers

Earth Leakage Circuit Breakers (ELCB) shall be fitted to individual equipment, equipment groups or to complete site s consistent with national safety legislation.

VL0216/- Personnel protection from voltages

Personnel shall be protected from accidental contact with voltages in excess of 30 V with respect to ground or frame during normal operation of the system.

VL0217/- Removable covers

Removable covers on equipment with operating voltages between 70 V and 500V shall have supply interlocks, which may be by-passed for maintenance purposes in accordance with MIL-HDBK-454A, Guideline 1, Section 4.5.4.1.

3.4.3 Equipment Functional Safety

VL0218/- VL system safety hazards identification

The Contractor shall apply engineering principles, criteria and techniques to identify any VL system safety hazards in accordance with MIL-STD-882D.

VL0219/- Purchaser's Safety Targets analysis

The Contractor shall assess the results of the system safety analysis against the Purchaser's Safety Targets as specified in the Project SOW.

VL0220 – VL0229 - SPARE

3.5 Site Preparation

3.5.1 Site Adaptation

(1) Site adaptation will be required at all sites. It will be mostly referred to cabling and power supply and can face different level of complexity in different sites.

(2) The following requirements are potential and representative requirements only and are dependent on site-specific implementation. Any combination of the requirements below maybe implemented. There may also be additional adaptation works, which are not identified below.

(3) The exact scope of the site adaptation will be determined during Contractor's site surveys and captured in the appropriate CDRLs identified in the Project SOW.

VL0230/- Power distribution

During the Site survey, the Contractor is to establish provision of UPS power supply availability and determine if additional circuit breakers and power outlets are required by VL system. If additional power infrastructure is required, the Contractor is to confirm provision of the required services from the THN site technical staff.

VL0231/- Cable trays

If required, additional cable trays made of galvanized or stainless steel, with a width of at least 16 cm and height of at least 8 cm, shall be installed for power and signal cables under the false floor.

VL0232/- Wall penetration seals

After installation of cables, wall penetrations shall be filled with fire resistant materials.

VL0233/- Uninterrupted power supply (UPS)

The VL system shall make use of the local site Uninterrupted Power Supply (UPS). The Contractor shall investigate if current site UPS capacity is sufficient

for VL system power requirements. In case of insufficiency Contractor shall advice the Purchaser about required UPS capacity or provide the VL system dedicated UPS equipment.

VL0234/- UPS operation time

The VL system shall remain operational up to 10 minutes using the UPS power source.

3.6. System Quality Factors

3.6.1 Availability

(1) The requirements for operational availability are:

VL0235/- Full support

The VL system shall meet the requirements for full support of all components simultaneously without performance degradation with an operational availability of not less than 0.995.

3.6.2 Reliability

VL0236/- Reliability

The contractor shall perform reliability tests in accordance with the requirements contained in Project SOW.

VL0237/- Reliability

The contractor shall, by analysis, show that the VL system has a minimum of 1000 operating hours Mean Time Between Attributable Failures (MTBAF).

3.6.3 Maintainability

(1) Maintainability characteristics are specified below. Reference is made to maintenance Levels, LRUs, Faults and Failures, which are defined in the VL system SOW. The Contractor shall, as part of their Task Analysis, show that:

VL0238/- Repair Coverage

At least 98% of the hardware faults shall be repairable by on site personnel.

VL0239/- MTTR

The MTTR for the faults specified in requirement VL0303/- shall not exceed 15 minutes repair time.

VL0240/- On-line Built-in Test Detection Rate

On-line Built-in Test (BIT) shall detect at least 98% of hardware faults.

VL0241/- BIT Coverage

BIT coverage shall include units and LRUs on active standby.

VL0242/- Start up BIT Initiation

The application of power shall initiate a Start up BIT in the respective equipment item(s) of the VL system.

VL0243/- Restart after Fault Detection

On-line detection of a site's subsystem/unit fault shall initiate an attempt to restart that subsystem/unit.

VL0244/- Impact of Maintenance Activities

Maintenance activities of a corrective or preventive nature on equipment shall not affect the continued use of other equipment of the VL system.

(2) The requirement for preventive maintenance is to be minimised. Where preventive maintenance is required, the activity should have a minimal impact on the operational activity. Preventive maintenance includes periodic inspections, condition monitoring, item replacement, cleaning and adjustment.

VL0245/- Provision for Aborting Maintenance

The system shall be designed such that preventive maintenance activities can be aborted at any stage, allowing the system to be restored to full operation in not more than 10 minutes.

VL0246/- Preventive Maintenance per Item

Any one item of equipment shall not require preventive maintenance more frequently than once per month.

VL0247/- BIT Apportioned Failure Rate

The apportioned failure rate of the BIT circuitry and devices shall not exceed 10% of the failure rate of the item or function being monitored.

VL0248/- Percentage of False Alarms

The percentage of false alarms of failure reported by BIT shall not exceed 1% of total reported failures.

VL0249/- BIT Design

The BIT design should comply with the following design considerations:

a. Switches should not be placed in series paths for purposes of introducing stimuli, introducing normal signals, or measuring system performance,

b. Isolation should be provided at system functions with BIT circuitry and devices such that BIT should not affect system performance, nor shall failure of BIT interfere with system operation, and

c. BIT stimuli should be selected such that system performance remains unchanged in the presence of the stimuli.

3.6.4 Quality of Services

VL0250/- VL system quality of service I

Quality of service is a key factor for a successful implementation of the VL system into NATO’s IP backbone network. To ensure a 100% reliable system design all Voice over IP (VoIP) traffic, including signalling traffic and voice payload, shall be sent over NATO Ground Communication System (NGCS) segments in dedicated voice VLANs and MPLS VRFs

VL0251/- VL system quality of service II

The complete layer 2 and layer 3 components involved in transmitting signalling or voice payload traffic need to be QoS enabled.

VL0252/- Priority queue

A priority queue for voice traffic has to be provided to guarantee priority based voice traffic before transmitting data traffic.

VL0253/- QoS setup

The QoS setup shall be implemented end to end for all VL system locations.

3.7. Language

VL0254/- Markings and inscriptions

All markings and inscriptions on the equipment shall be clearly indicated in English.

VL0255/- HMIs

The user terminal interface, system administration and management tool interfaces and all other system information shall be provided to the user in English language formats.

VL0256/- Workmanship standard

The minimum standard of workmanship shall be in accordance with MIL-STD-454A, Requirement 9.

NATO Communications and Information Agency

RFQ-13639-ACCS

Procurement Specification

for the Implementation of the

Enhancements to
NATO Integrated Air and Missile Defence System
Command and Control Communications

Voice Loop Communications

Purchaser Furnished Property

NCI Agency, Book II, Part 4, Section 2, Annex A
Rev. – 30.05.2013

This Page Intentionally Left Blank.

REVISION SHEET

ECP No.	Revision	Date
001	Issue	30 May 2013

This Page Intentionally Left Blank.

TABLE OF CONTENTS

1. PURCHASER FURNISHED PROPERTY 3

1.1. Megaplex 3

This Page Intentionally Left Blank.

1. PURCHASER FURNISHED PROPERTY (PFP)

(1) The following are defined as Purchaser Furnished. Details of each are provided in the subsequent paragraphs.

Name	Description	
Megaplex set	Multiplexer integrating the site into NATO General Communications System	

1.1. Megaplex

(1) The following table provide the information about the PFP Megaplex equipment together with already installed interface adapter cards. All Megaplex equipment has been manufactured by RAD

Item	Description	Function	Part number	Quantity per site	Remarks
1	Megaplex 2100, 230VA, dual power	Multiplexer chassis	MP-2100/230/RP/2UTP	1	2 sets at SADC
2	4UME1, single port	E1 interface card – WAN connectivity	MP-2100-ML-1E1	1	Used currently as ISDN connectivity
3	TDMoIP card	TDM over IP card – alternate WAN connectivity	MP2100-ML-IP/UTP	1	Used in case of WAN IP connectivity
4	4-CH voice card FXS	Voice interface card	MP-2100-4A/FXS/RJ	1	Installed at CRC sets
5	8-CH voice card FXO	Voice interface card	MP-2100-8A/FXO/RJ	3	Installed at CAOC sets

NATO Communications and Information Agency

RFQ-13639-ACCS

Procurement Specification

for the Implementation of the

Enhancements to

NATO Integrated Air and Missile Defence System

Command and Control Communications

Voice Loop Communications

Verification Cross Reference Index (VCRI)

NCI AGENCY

NCI Agency, Book II, Part 4, Section 2, Annex B

Rev. -, 30.05.2013

This Page Intentionally Left Blank.

REVISION SHEET

ECP No.	Revision	Date
INITIAL RELEASE	-	30.05.2013

This Page Intentionally Left Blank.

TABLE OF CONTENTS

1. Verification Cross Reference Index 1

This Page Intentionally Left Blank.

1. Verification Cross Reference Index

REQ ID	Title	Inspection	Analysis	Test	Remarks
3.2. Voice Loop System Requirements					
3.2.1. General System Description					
VL0001	VL system main functionalities			X	
VL0002	VL system compatibility	X	X		Analysis of future compatibilities
VL0003	VL system interoperability			X	
VL0004	Encryption	X	X		Analysis of future encryption
VL0005	COTS Equipment	X			
VL0006	Installation sites	X			
VL0007	Network protocol standard		X		
VL0008	Types of installation	X			
VL0009	System domains			X	
VL0010	Site functions			X	
VL0011	Recording			X	
VL0012	Lifecycle and O&M costs		X		
VL0013	Number of CAOC/SADC users	X		X	
VL0014	Number of CRC users	X		X	
VL0015	COTS upgradeability		X		
3.2.2. Voice Loop Functionality					
VL0020	Voice loop features			X	
VL0021	VL broadcast I			X	
VL0022	VL broadcast II			X	
VL0023	VL channels quantity			X	
VL0024	VL channels configuration replication to SADC			X	
VL0025	VL channels roles	X			
VL0026	User load for VL channel			X	
VL0027	VL channel use I			X	
VL0028	VL channel use II			X	
VL0029	Single user transmission at one time			X	
VL0030	VL channel information	X		X	
VL0031	Number of VL channels available for user			X	
3.2.2.1. Signalization in Voice Loop					
VL0032	VL channel activation			X	
VL0033	VL channel over-ride I			X	
VL0034	VL channel over-ride II			X	
VL0035	VL channel over-ride alert				
VL0036	VL channel monitoring indication	X			
VL0037	VL channel status indicators			X	
VL0038	Mute audio alerts			X	

REQ ID	Title	Inspection	Analysis	Test	Remarks
VL0039	Initiation of transmission			X	
VL0040	VL channel monitoring by user			X	
VL0041	Volume control			X	
3.2.3. VoIP Telephone Functionality					
VL0042	Telephone functions I		X	X	
VL0043	VL user terminal extension number	X			
VL0044	Telephone calls within VL domain			X	
VL0045	Telephone calls across VL domains			X	
VL0046	Telephone calls between CAOCs/SADC			X	
VL0047	Telephone functions II			X	
VL0048	VL system separation from PABX	X			
VL0049	Call lists and directories	X			
VL0050	PTT protection			X	
VL0051	Media services		X		
3.2.4. Voice Loop System Elements					
3.2.4.1. VL User Terminal					
VL0060	VL user terminal set	X			
VL0061	Terminal footprint	X			
VL0062	Graphical User Interface	X			
VL0063	GUI functions and displayed information	X			
VL0064	VL channel availability			X	
VL0065	Signalling protocols		X		
3.2.4.2. VL Administration Console					
VL0065	VL administration console set	X			
VL0067	Operating system	X			
VL0068	Operating system administration tools	X			
VL0069	VL system management tools	X			
VL0070	VL system administration tools	X			
VL0071	User accounts and profiles	X			
3.2.4.2.1. VL System Management Tool Functions					
VL0072	VL system status information	X			
VL0073	Print out capability			X	
VL0074	VL channel participation configuration			X	
VL0075	Unserviceabilities			X	
VL0076	VL channel participant enabling I			X	
VL0077	VL channel participant enabling II			X	
VL0078	SADC activation			X	
VL0079	Replication of CAOC configuration to SADC			X	
VL0080	VL channel status summary	X			

REQ ID	Title	Inspection	Analysis	Test	Remarks
3.2.4.3. VL LAN Switch					
VL0081	VL LAN switch	X			
VL0082	Quantity of LAN ports	X			
3.2.4.4. VL Router					
VL0083	VL Router	X			
3.2.4.5. VL Control Unit					
VL0084	VL control unit I		X	X	
VL0085	VL control unit II			X	
3.2.4.6. VL Recording and Playback Capability					
VL0086	Recording capability	X		X	
VL0087	Duration of voice data storage		X	X	Tests when possible
VL0088	Playback capability			X	
VL0089	Date and time labelling of recorded data	X			
VL0090	Storage to removable media I			X	
VL0091	Storage to removable media II			X	
3.2.5. VL System Site Configuration Types					
3.2.5.1. CAOC configuration					
VL0100	VL system CAOC configuration	X			
3.2.5.2. SADC Configuration					
VL0101	VL system SADC configuration	X			
3.2.5.3. CRC Configuration					
VL0102	VL system CRC configuration	X			
3.2.6. Interface with Bearer Equipment					
VL0103	Interface points identification	X	X		
VL0104	Multiplexer interfacing adapter cards or connections requirements and delivery	X	X		
VL0105	Multiplexer interface adapter card site installations	X	X		
VL0106	Determination of required bearer and PFP parameters		X		
3.2.7. Administrative Functional Requirements					
3.2.7.1. Perpetuity of Voice Channels					
VL0107	VL channels continuity			X	
VL0108	VL channels initialization			X	
3.2.7.2. Presence information					

REQ ID	Title	Inspection	Analysis	Test	Remarks
VL0109	Presence information	X			
VL0110	Presence information print out			X	
VL0111	Information about participants	X			
VL0112	Presence information content	X			
VL0113	Presence information display	X			
3.2.8. Non-functional requirements					
VL0114	IP routing		X		
VL0115	IP PBX cluster architecture		X		
3.2.8.1. Voice over IP Standards					
VL0116	VoIP standards		X		Certificates
3.2.8.2. Codecs					
VL0117	Codecs		X		Certificates
3.3. Design and Constructions					
3.3.1. Hardware Characteristics					
3.3.1.1. Materials					
VL0120	Material selection		X		Certificates
VL0121	Specification of electric cables		X		
VL0122	Dissimilar metal selection		X		
VL0123	Protection of metals against corrosion	X	X		
VL0124	Organic materials		X		
3.3.1.2. Construction					
VL0125	Modularity of equipment		X	X	
VL0126	Cabinets	X			
VL0127	Use of existing cabinets	X	X		
VL0128	Cabinet construction I	X			
VL0129	Cabinet construction II	X		X	
VL0130	Cabinet overheating		X	X	
VL0131	LRU removal			X	
VL0132	Equipment lubrication		X		
VL0133	Cabinets and frames rigidity I		X		
VL0134	Cabinets and frames rigidity II		X	X	
VL0135	LRU Access	X			
VL0136	Cable extenders and retractors	X			
VL0137	Quick release latch mechanism	X			
VL0138	Access doors protection			X	
VL0139	Protection against incorrect location			X	
3.3.1.3. cabling and Connectors					
VL0140	Cables and connectors	X			

REQ ID	Title	Inspection	Analysis	Test	Remarks
VL0141	Cable routing I	X			
VL0142	Cable routing II	X			
VL0143	Connector characteristics I	X			
VL0144	Connector characteristics II	X		X	
3.3.2. Electromagnetic Interface and Electromagnetic Radiation					
VL0145	Minimised emission		X		Certificates
3.3.3. Hardware					
VL0150	Item markings	X			
VL0151	Visibility of item markings	X			
VL0152	Characteristics of markings	X			
VL0153	Panel markings	X			
VL0154	Marking of sensitive parts	X			
VL0155	Identification of removable cables	X			
VL0156	Cable conductor identification	X			
VL0157	Information provided on nameplate	X			
VL0158	Updating of nameplate information	X			
VL0159	Nameplate attachment	X			
VL0160	Nameplate labelling standard	X			
VL0161	COTS item manufacturers labelling	X			
VL0162	Packing manufacturer labelling	X			
VL0163	Marking of packing containers	X			
VL0164	Marking language	X			
3.3.4. Interchangeability					
VL0165	Interchangeability of items			X	
VL0166	Adjustments on replacement			X	
3.3.5. Human Engineering					
VL0167	Audio alarms		X		
VL0168	Visual displays		X		
VL0169	Speech transmission		X		
VL0170	Speech reception		X		
VL0171	Noise levels		X	X	Certificates
3.3.6. System Security					
3.3.6.1. Communications Security					
VL0172	NATO communications security standards		X		
3.3.6.1.1. Confidentiality					
VL0173	COMSEC crypto		X		
3.3.6.2. TEMPEST					

REQ ID	Title	Inspection	Analysis	Test	Remarks
VL0174	TEMPEST Policy		X		
VL0175	TEMPEST zoning		X		
VL0176	TEMPEST installation		X		
3.3.7. Power Supply Requirements					
3.3.7.1. General					
VL0180	Equipment power supply			X	
VL0181	Standard power outlets	X			
VL0182	Power fluctuations			X	
VL0183	Peak transient currents		X		Certificates
VL0184	Power factor		X		
3.3.7.2. Power Entry in Equipment					
VL0185	AC power panel	X			
VL0186	AC power switches	X			
VL0187	Fuse access	X			
VL0188	Current overload protection		X		
3.3.7.3. Earthing					
VL0189	Earthing requirements of static sites	X			
VL0190	Earthing system		X		
3.4. Equipment Health and Safety					
VL0200	Safety design criteria		X		
VL0201	Danger materials		X		
VL0202	Equipment warning labels		X		
VL0203	Liberation of gases and fumes		X		
VL0204	Liberation of toxic fumes		X		
VL0205	Liberation of explosive gases		X		
VL0206	Material features in different conditions		X		
VL0207	Fungus-inert materials		X		
VL0208	Fungus nutrient materials		X		
VL0209	Ozone level generated by the equipment		X		
VL0210	Asbestos		X		
VL0211	Glass fibre materials	X			
3.4.1. Mechanical Safety					
VL0212	Rotating and moving parts	X			
VL0213	Edges and corners	X			
3.4.2. Electrical Safety					
VL0214	Earth connection point	X			
VL0215	Earth Leakage Circuit breakers	X			Certificates
VL0216	Personnel protection from voltages	X			

REQ ID	Title	Inspection	Analysis	Test	Remarks
VL0217	Removable covers	X			
3.4.3. Equipment Functional Safety					
VL0218	VL system safety hazards identification		X		
VL0219	Purchaser's Safety Targets analysis		X		
3.5. Site Preparation					
3.5.1. Site Adaptation					
VL0230	Power distribution		X		
VL0231	Cable trays		X		
VL0232	Wall penetration seals		X		
VL0233	Uninterrupted power supply (UPS)		X		
VL0234	UPS operation time			X	
3.6. System Quality Factors					
3.6.1. Availability					
VL0235	Full support		X	X	
3.6.2. Reliability					
VL0236	Reliability I			X	
VL0237	Reliability II		X		
3.6.3. Maintainability					
VL0238	Repair coverage		X		
VL0239	MTTR		X	X	
VL0240	On-line built-in test detection rate		X	X	
VL0241	BIT coverage		X		
VL0242	Start-up BIT initiation			X	
VL0243	Restart after fault detection			X	
VL0244	Impact of maintenance activities		X	X	
VL0245	Provision of aborting maintenance			X	
VL0246	Preventive maintenance per item		X		
VL0247	BIT apportioned failure rate		X		
VL0248	Percentage of false alarms		X	X	
VL0249	BIT design		X		
3.6.4. Quality of Service					
VL0250	VL system quality of service I		X		
VL0251	VL system quality of service II		X		
VL0252	Priority queue		X		
VL0253	QoS setup				
3.7. Language					
VL0254	Markings and inscriptions	X			

REQ ID	Title	Inspection	Analysis	Test	Remarks
VL0255	HMIs	X			
VL0256	Workmanship standard		X		

NATO Communications and Information Agency

RFQ-13639-ACCS

Procurement Specification

for the Implementation of the

Enhancements to
NATO Integrated Air and Missile Defence System
Command and Control Communications

Voice Loop Communications

Voice Loop System Diagrams

NCI Agency, Book II, Part 4, Section 2, Annex C

Rev. – 30.05.2013

This Page Intentionally Left Blank.

REVISION SHEET

ECP No.	Revision	Date
Initial issue	Original	30.05.2013

This Page Intentionally Left Blank.

TABLE OF CONTENTS

1. VL SYSTEM SITE CONFIGURATION DIAGRAMS 1
1.1. CAOC/Fall-back SADC 1
1.2. CRC 2
2. VL SYSTEM GLOBAL CONFIGURATION 3
2.1. Northern Region Domain 3
2.2. Southern Region Domain 5

This Page Intentionally Left Blank.

1. VL SYSTEM SITE CONFIGURATION DIAGRAMS

(1) The following diagrams present the VL System site configuration.

1.1. CAOC/Fall-back SADC

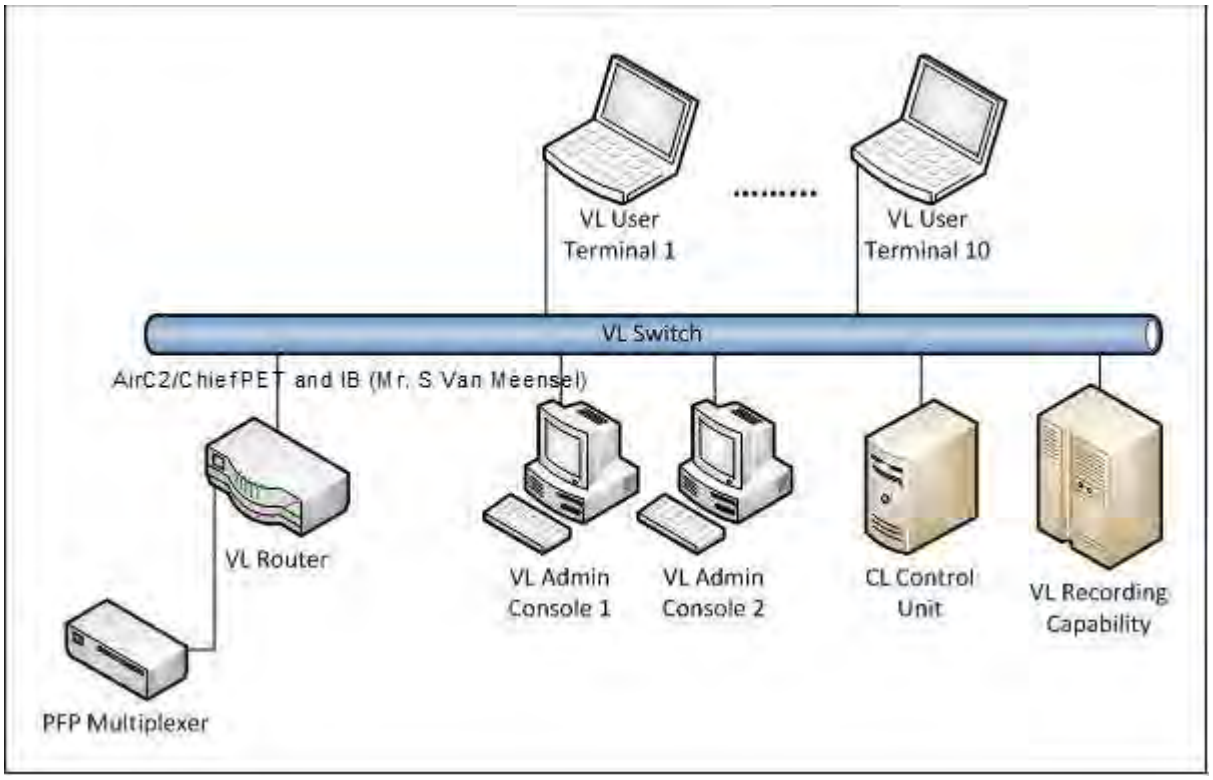


Fig. 1. VL System CAOC/Fall-back SADC site configuration

1.2. CRC

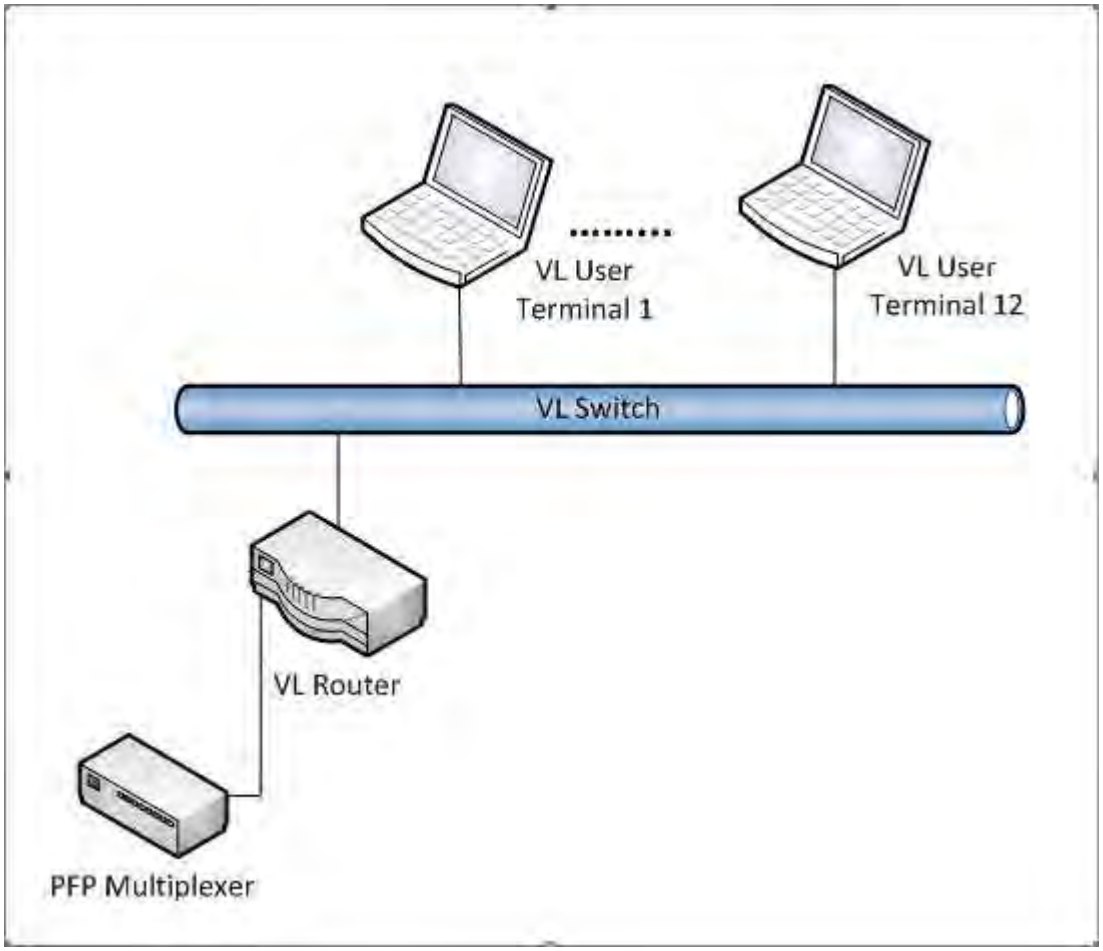


Fig. 2. VL System CRC site configuration

2. VL SYSTEM CONNECTIVITY CONFIGURATION

(1) The following diagrams present the VL System connectivity configuration between the sites within the geographical domains.

2.1. Northern Region Domain Connectivity

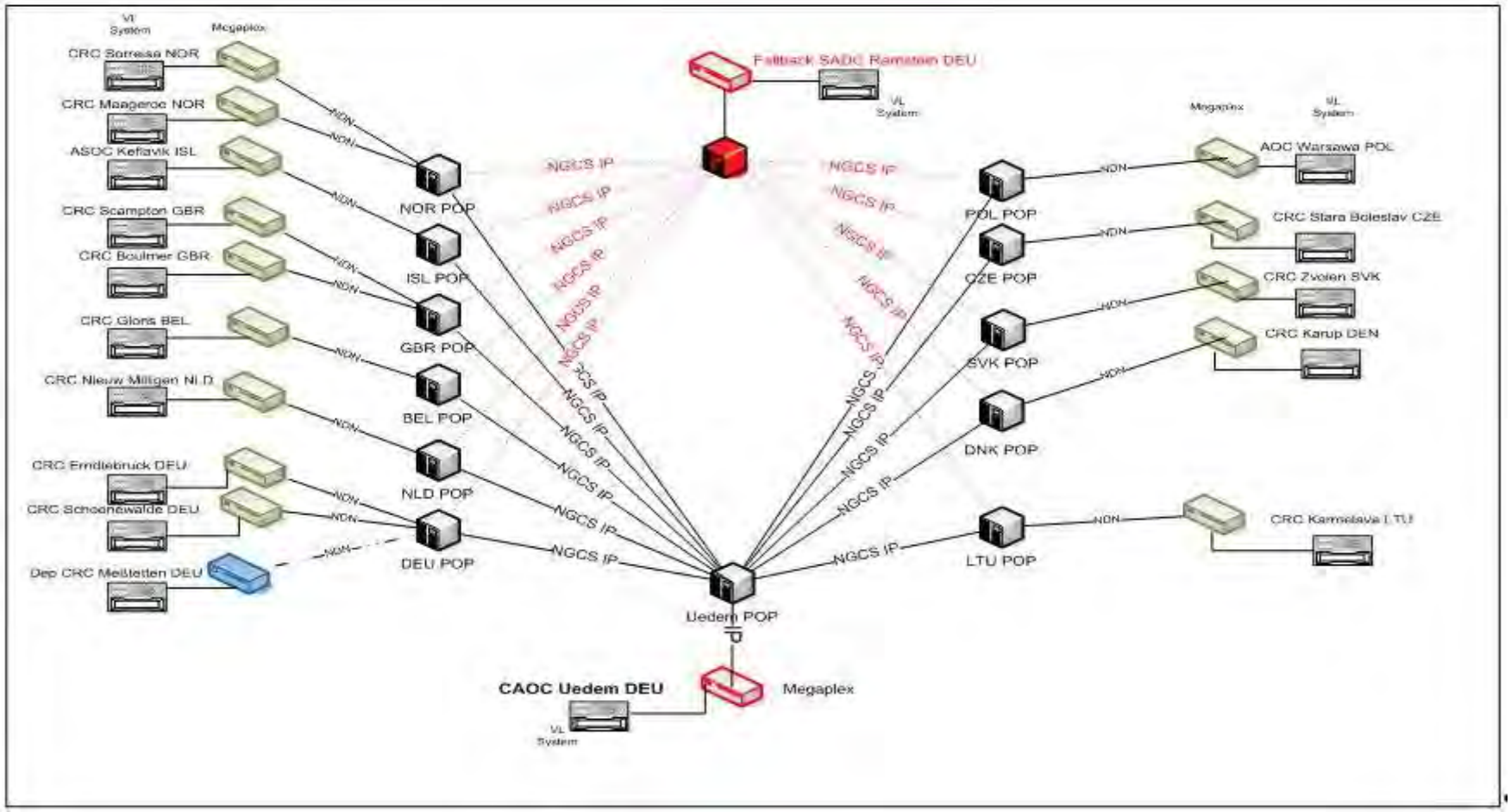


Fig. 3. Northern Region Voice Loop System Connectivity Diagram

2.2. Southern Region Domain Connectivity

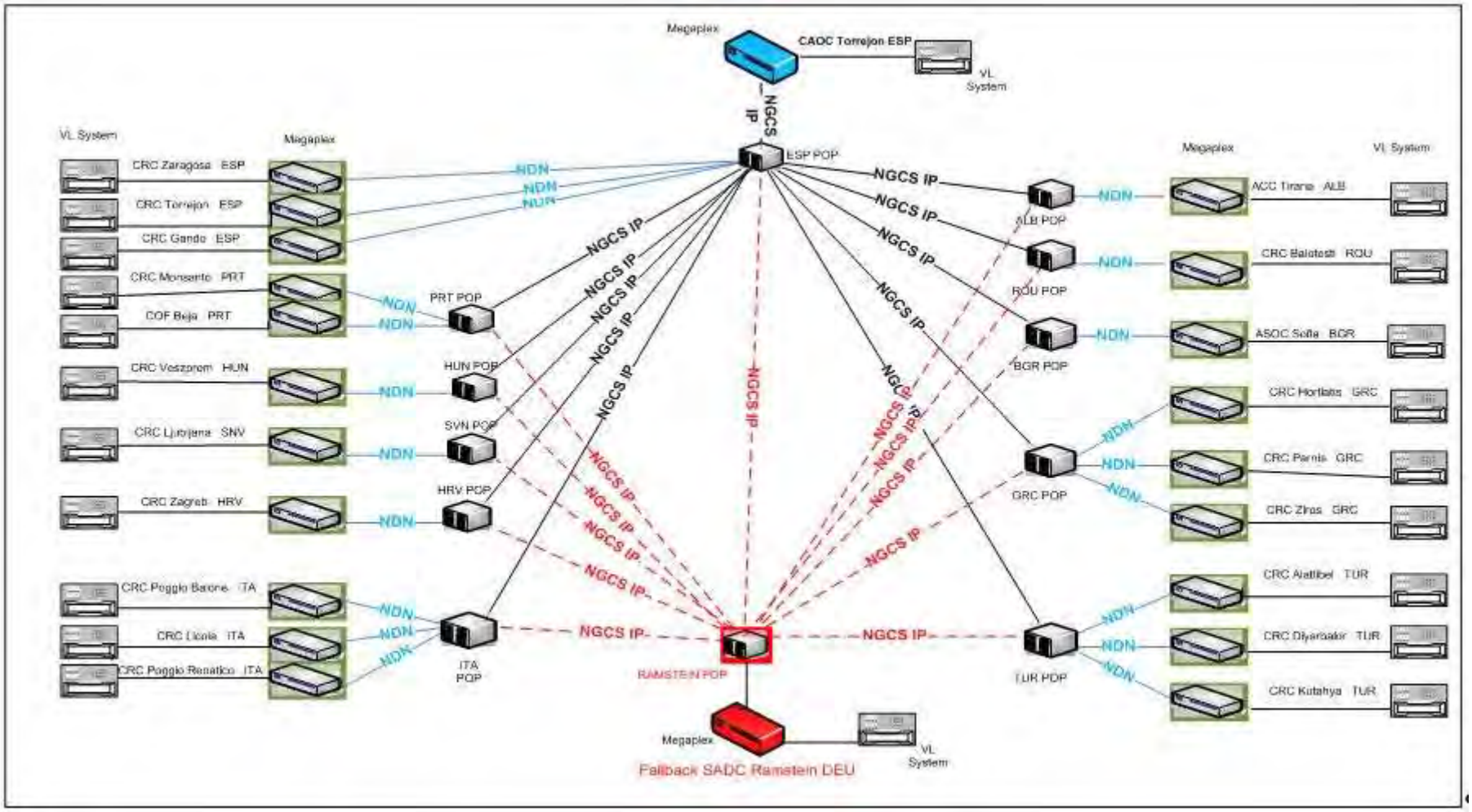


Fig. 4. Southern Region Voice Loop System Connectivity Diagram

NATO Communications and Information Agency

RFQ-13639-ACCS

Other Annexes

For the Implementation of the

Enhancements to

NATO Integrated Air and Missile Defence System

Command and Control Communications

Voice Loop Communications

Applicable Documents

NCI Agency, Book II, Part 4, Section 3, Annex A

Rev. -, 30.05.2013

Intentionally Blank.

REVISION SHEET

ECP No.	Revision	Date
Initial Release	-	30 May 2013

INTENTIONALLY BLANK.

Annex A1- References

Reference	Title	Date	Comment /Version
A	PO(2011)0204-FINAL NEW NATO COMMAND STRUCTURE – Including its Geographic footprint, agreed at the NATO Ministerial meeting on 8 June 2011.		
B	SH/OPI/OPS/WP-281415, Concept of Operations (CONOPS) for the Alliance Air Command and Control – FINAL DRAFT, dated 15 November 2011.		
C	SH/OPI/OSP/WP/11-281622 - Military Operational Requirements (MOR) for the two Future CAOCs and DACCC, dated 22 December 2011.		
D	CAOC Uedem NCS Reform – MORs/CIS Requirements (SHAPE Mtg), dated 8 December 2011.		
E	IMSM-0364-2011, NCS Implementation Outline and Work plan, dated 14 Jul 2011		
F	IMSWM-0288-2011 (SD4), dated February 2012		
G	NCIA/AirC2/2012/02916 – NCIA TBCE Project 5WI02025		

Annex 2 - Glossary of Terms and Definitions

Term	Description
ABDs	As Built Drawings
ABL	Allocated baseline
AC	Air Command -HQ Air Com Ramstein
ACE	Allied Command Europe
ACO	Allied Command Operations
ACT	Allied Command Transformation
ADP	Automated Data Processing
Air C2 PO	NCI Agency Air C2 Programme Office
ALDT	Administrative Logistics Delay Time
AOR	Area of Operations
AOI	Area of Interest
APA/APAs	Air Policing Area(s)
C2	Command and Control
CAOC	Combined Air Operations Centre
CC	Configuration Control
CDD	Conceptual Design Drawings
CDM	Contract Data manager
CDMA	Contract Data Management Authority
CDMS	Contract Data Management System
CDRL	Contract Data Requirement List
CFE	Contractor Furnished Equipment
CI	Configuration Item
CM	Configuration Management
CMP	Configuration Management Plan
CMRD	Configuration Management Requirements Document
COMSEC	NATO Communications Security
CONEMP	Concept of Employment
CONOPS	Concept of Operations
CONUSE	Concept of Use
COTS	Commercial Off The Shelf
CRC	Control and Reporting Centre
CSA	Configuration Status Accounting
CSCI	Computer Software Configuration Item
CWBS	Contract Work Breakdown Structure
CVA	Configuration Verification and Audits
DBL	Developmental Baseline
DDD	Development Design Drawings
DEXs	Data Exchange Specifications
DID	Data Item Description
ECP	Engineering Change Proposal

Term	Description
ECR	Engineering Change Request
EDC	Effective Date of Contract
EMICP	Electromagnetic Interference Capacity
EMICP	Electromagnetic Interference Compatibility Program
ENB	Engineering Notebook
FAT	Factory Acceptance Testing
FBL	Functional Baseline
FMECA	Failure Modes, Effects and Criticality Analysis
FOC	Full Operational Capability
FPTA	Final Post Test Analysis
FRACAS	Failure Reporting Analysis and Corrective Action System
FRB	Failure Review Board
FSA	Full Site Acceptance
FTE	Formal Test Event
FTO	Formal Test Order
GUI	Graphics User Interface
HCI	Human Computer Interface
HW	Hardware
HWCI	Hardware Configuration Item Architecture
HWDDD	Hardware Development Design Drawings
IATO	Interim Approval to Operate
IDD	Interface Design Description
IEP	Installation Engineering Plan
IGES	International Graphics Exchange Standards
ILS	Integrated Logistics Support
INFOSEC	NATO Information Security
IOC	Initial Operational Capability
IPTA	Initial Post Test Analysis
IRS	Interface Requirements Specification
ISO	International Standards Organization
ISP	Integrates Support Plan
ITD	Initial Test Debriefing
JFAC	Joint Force Air Component
LCNs	Logistic Support Analysis Control Numbers
LGC	Logistics Guidance Conference
LORA	Level of Repair Analysis
LRU	Line Replacement Unit
LSA	Logistics Support Analysis
LSAP	Logistics Support Analysis Plan
LSAR	Logistics Support Analysis Record
LSATM	Logistics Support Arrangement Technical manuals
LSC	Logistics Support Concept

Term	Description
MC	Military Committee
MIL-STD	Military Standard
MIPS	Master Implementation Project Schedule
MMR	Minimum Military Requirement
MOR	Military Operational Requirement
MPLS	Multiprotocol Label Switching
MTTR	Mean Time to Repair
MUX	Megaplexer Equipment
NACMA	NATO ACCS Management Agency (renamed -NCI Agency)
NATINAMDS	NATO Integrated Air and Missile Defence System
NCAGE	NATO Commercial and Government Entity
NCI Agency	NATO Communications and Information Agency
NCIA SD	NCIA Service Delivery (Formerly NCSA)
NCIA SS	NCIA Agency Service Supply (formerly NC3A)
NCIO	NATO Communications and Information Organization
NCIRC	NATO Computer Incident Response Capability
NCS	NATO Command Structure
NDN	National Defence networks
NGCS	NATO Ground Communications System
NSNs	NATO Stock Numbers
OT&E	Operational Test & Evaluation
PBL	Product Baseline
PDR	Preliminary Design Review
PfP	Purchaser Furnished Property
PHST	Packaging, Handling, Storage and Transportation
PLCS	Product Life Cycle Support
PMP	Project Management Plan
PMR	Project Management Reviews
POP	Point of Presence
PS	Procurement Specification
PSA	Provisional Site Acceptance
QA	Quality Assurance
QAR	Quality Assurance Representative
QoS	Quality of Service
RAMT	Reliability, Maintainability and Availability Engineering
RCIL	Recommended Consumable Items List
RMP	Risk Management Plan
RTM	Requirements Traceability Matrix
SAD	Software Architecture Design
SADC	Static Air Defence Centre
SAP	Site Activation Plan

Term	Description
SARD	Site Adaptation Requirement Drawings
SAT	Site Acceptance Testing
SCI	Site Compliance Inspection
SDF	Software Development Files
SDL	Software Development Library
SDP	Software Development Plan
SDR	System Design Review
SED	Site Engineering Documentation
SEMP	Systems Engineering Management Plan
SHAPE	Supreme HQ Allied Powers Europe
SOW	Statement of Work
SPS	Software Product Specification
SRR	System Requirements Review
SRS	System Requirements Specification
SSDD	System/Subsystem Design Description
SSEP	System Security Engineering Plan
SSI	Software Significant Items
SVD	Software Version Description
SW	Software
SWBS	Subcontractors Work Breakdown Structure
SWDL	Software Development Library
SwRS	Software Requirements Specification
TDM	Technical Data package
TDP	Technical Data Package
T&E	Test and Evaluation
TEMP	Test and Evaluation Master Plan
THN	Territorial Host Nation
TIM	Technical Interchange Meetings
TRR	Test Readiness Review
TTE	Special Tools and Test Equipment
UR	Urgent Requirement
VCRI	Verification Cross Reference Index
VL	Voice Loop
VLANS	Virtual Local Area Network
VoIP	Voice over Internet Protocols
VRF	Virtual Routing and Forwarding
VT	Vulnerability Testing
WBS	Work Breakdown Structure

NATO Communications and Information Agency

RFQ-13639-ACCS

Other Annexes

For the Implementation of the

Enhancements to

NATO Integrated Air and Missile Defence System

Command and Control Communications

Voice Loop Communications

Applicable Documents

NCI Agency, Book II, Part 4, Section 3, Annex B

Rev. -, 30.04.2013

Intentionally Blank

REVISION SHEET

ECP No.	Revision	Date
Initial Release	-	30 May 2013

INTENTIONALLY LEFT BLANK.

ANNEX B1 – Documents

Doc	Title	Date	Comment /Version
1	MIL-STD 499C (Draft) - Military Standard: System Engineering Management		
2	MIL-STD-498 - 05 December 1994 Software Development and Documentation	Dec 94	
3	MIL-STD1521B - MILITARY STANDARD: TECHNICAL REVIEWS AND AUDITS FOR SYSTEMS, EQUIPMENTS, AND COMPUTER SOFTWARE (04 JUN 1985)	Jun 85	
4	MIL-STD-882C, MILITARY STANDARD: SYSTEM SAFETY PROGRAM REQUIREMENTS	19 Jan 93	
5	AC/322-D (2005)0043 – NATO C3 Board (AC/322) NATO INFOSEC Technical and Implementation Guidance for the Assessment of Assurance Levels in Specific CIS Environments)		
6	AC/322-D/0062, NATO INFOSEC Technical and Implementation Directive for an INFOSEC Product, Protection Profile and Package List.		
7	(C-M)(2002)49-NATO Security Policy		
8	SDIP-27 – TEMPEST Certification		
9	SDIP -28 – NATO TEMPEST SECAN		
10	SDIP -29 – NATO TEMPEST SECAN		
11	AC/322-D (2007)0036 dated 12 July 2007		
12	(AC/322) NATO INFOSEC Technical and Implementation Guidance for the Assessment of Assurance Levels in Specific CIS Environments) AC/322-D (2005)0043		
13	MIL-STD-461E - Requirements for the Control of Electromagnetic Interference characteristics of Subsystems and Equipment		
14	MIL-STD-100G – DEPARTMENT OF DEFENSE STANDARD PRACTICE FOR ENGINEERING DRAWINGS (9 JUN 1997) [S/S BY ASME-Y14.100, ASME-Y14.24, ASME-Y14.35M & ASME-14.3		
15	ACE COMSEC Directive N. 5.		
16	MIL-STD-1388-1A - MILITARY STANDARD: LOGISTICS SUPPORT ANALYSIS (11 APR 1983)		
17	MIL-STD-1388-2 B - MILITARY STANDARD: DOD REQUIREMENTS FOR A LOGISTIC SUPPORT ANALYSIS RECORD (28 MAR 1991)		

Doc	Title	Date	Comment /Version
18	MIL-STD-1390 - MILITARY STANDARD: LEVEL OF REPAIR (LOR) (08 JUL 1988)		
19	MIL-STD-785B - MILITARY STANDARD: RELIABILITY PROGRAM FOR SYSTEMS AND EQUIPMENT DEVELOPMENT AND PRODUCTION (15 SEPT 1980)		
20	MIL-STD-470 - MILITARY STANDARD: MAINTAINABILITY PROGRAM FOR SYSTEMS AND EQUIPMENT (30 MAY 1989)		
21	MIL-STD-2165 - MILITARY STANDARD: TESTABILITY PROGRAM FOR ELECTRONIC SYSTEMS AND EQUIPMENTS (26 JAN 1985)		
22	NATO Manual for Codification, ACodP-1 -	July 2012	
23	Specification S1000D, Issue 2.2 of the Aerospace and Defence Industries Association of Europe (ASD)		Technical manuals
24	MIL-HDBK-881 – Work Breakdown Structure	March 93	
25	STANAG 4107 - (Edition 7, August 2006): Mutual Acceptance of Government Quality Assurance and Usage of the Allied Quality Assurance Publications		
26	AQAP-2110 – NATO Requirements for Quality Assurance for Design, Development and AQAP-2210 AQAP-2009		QA Program
27	ISO 9001:2000		QA Program
28	AQAP-2105		